

$$\textcircled{1} \quad 2+6=$$

$$8=$$

$$\textcircled{2} \quad -2+6=$$

$$4=$$

$$\textcircled{3} \quad 2-6=$$

$$-4=$$

$$\textcircled{4} \quad -2-6=$$

$$-8=$$

$$\textcircled{5} \quad -2(-3)=$$

$$6=$$

$$\textcircled{6} \quad 2(3)=$$

$$6=$$

$$\textcircled{7} \quad -2(3)=$$

$$-6=$$

$$\textcircled{8} \quad 2(-3)=$$

$$-6=$$

$$\textcircled{9} \quad -\frac{8}{2}=$$

$$-4=$$

$$\textcircled{10} \quad \frac{8}{2}=$$

$$4=$$

$$\textcircled{11} \quad -\frac{8}{2}=$$

$$-4=$$

$$\textcircled{12} \quad \frac{8}{-2}=$$

$$-4=$$



MOLOW TSI SOLUTION STEP

1-10-14
 ✓✓✓✓✓

step by step solutions

TSI

✓✓

$$(13) \quad (-2)^2 =$$

$$(-2)(-2) =$$

$$4 =$$

$$(14) \quad -4^2 =$$

$$-(4)(4) =$$

$$-(16) =$$

$$-16 =$$

$$(15) \quad -5^2 - (-4)^2 =$$

$$-(5)(5) - (-4)(-4) =$$

$$-(25) - (16) =$$

$$-25 - 16 =$$

$$-41 =$$

$$(16) \quad \frac{1}{5} + \frac{2}{5} =$$

$$\frac{1+2}{5} =$$

$$\frac{3}{5} =$$

$$(17) \quad \frac{1}{8} + \frac{3}{8} =$$

$$\frac{1+3}{8} =$$

$$\frac{4}{8} =$$

$$\frac{4.1}{4.2} = \left(\frac{1}{2} \right)$$



(18) $\frac{1}{2} + \frac{1}{3}$ LCD = 6

$$\frac{1}{2}\left(\frac{3}{3}\right) + \frac{1}{3}\left(\frac{2}{2}\right) =$$

$$\frac{3}{6} + \frac{2}{6} =$$

$$\frac{3+2}{6} =$$

$$\frac{5}{6} =$$



(19) $\frac{1}{4} + \frac{1}{6} =$ LCD = 12

$$\frac{1}{4}\left(\frac{3}{3}\right) + \frac{1}{6}\left(\frac{2}{2}\right) =$$

$$\frac{3}{12} + \frac{2}{12} =$$

$$\frac{3+2}{12} =$$

$$\frac{5}{12} =$$

(20) $-\frac{1}{4} + \frac{1}{6} =$ LCD = 12

$$-\frac{1}{4}\left(\frac{3}{3}\right) + \frac{1}{6}\left(\frac{2}{2}\right) =$$

$$-\frac{3}{12} + \frac{2}{12} =$$

$$\frac{-3+2}{12} =$$

$$\frac{-1}{12} =$$

$$(21) \frac{0}{2} =$$

$$0 =$$

$$(22) \frac{-4}{0} =$$

undefined =

4

(23) Find mean 2000, 2080, 2200, 1140, 1600

$$\frac{2000 + 2080 + 2200 + 1140 + 1600}{5} =$$

$$\frac{9020}{5} =$$

$$1804 =$$

(24) Find mode 10, 20, 20, 60, 90

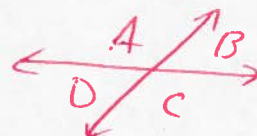
$$\text{most} = 20 = \text{mode}$$

(25) Find mean of A and B

$$\frac{A+B}{2} =$$

$$\frac{180}{2} =$$

$$90 =$$



(26) Find P if $P = 2L + 2W$ $L=10, W=5$

$$P = 2(10) + 2(5)$$

$$P = 20 + 10$$

$$P = 30$$

(27) Find A if $A = LW$

$$L=10, W=4$$

$$A = (10)(4)$$

$$A = 40$$



(28) Find V if $V = LWH$ $L=10, W=4, H=5$

$$V = (10)(4)(5)$$

$$V = 40(5)$$

$$V = 200$$

(29) Find A if $A = \frac{1}{2}BH$ $B=10, H=4$

$$A = \frac{1}{2}(10)(4)$$

$$A = \frac{1}{2}(40)$$

$$A = \frac{1}{2}\left(\frac{40}{1}\right)$$

$$A = \frac{1}{1}\left(\frac{20}{1}\right)$$

$$A = \frac{20}{1}$$

$$A = 20$$

(30) Find V if $V = X^3$ $X=2$

$$V = (2)^3$$

$$V = (2)(2)(2)$$

$$V = 4(2)$$

$$V = 8$$

(31) Find C if $A^2 + B^2 = C^2$ $A=4, B=3$

$$(4)^2 + (3)^2 = C^2$$

$$(4)(4) + (3)(3) = C^2$$

$$16 + 9 = C^2$$

$$25 = C^2$$

$$\sqrt{25} = \sqrt{C^2}$$

$$5 = C$$

(32) Find B if $A^2 + B^2 = C^2$ $A=3, C=5$

$$(3)^2 + B^2 = (5)^2$$

$$(3)(3) + B^2 = (5)(5)$$

$$9 + B^2 = 25$$

$$9 + B^2 - 9 = 25 - 9$$

$$B^2 = 16$$

$$\sqrt{B^2} = \sqrt{16}$$

$$B = 4$$

(6)

(33) Find A if $A = \frac{1}{2}H(B+C)$ $H=4, B=10, C=8$

$$A = \frac{1}{2}(4)(10+8)$$

$$A = \frac{1}{2}(4)(18)$$

$$A = \frac{1}{2}(72)$$

$$A = \frac{1}{2}\left(\frac{72}{1}\right)$$

$$A = \frac{1}{2}\left(\frac{2 \cdot 36}{1}\right)$$

$$A = 36$$

(34) Find M if $M = \frac{A-B}{C-D}$ $A = -8, B = -2$
 $C = -10, D = 2$

$$M = \frac{(-8) - (-2)}{(-10) - (2)}$$

$$M = \frac{-8 + 2}{-10 - 2}$$

$$M = \frac{-6}{-12}$$

$$M = \frac{6}{12}$$

$$M = \frac{6 \cdot 1}{6 \cdot 2}$$

$$M = \frac{1}{2}$$

(35) Find A if $A = x^2$ $x = 4$

$$A = (4)^2$$

$$A = (4)(4)$$

$$A = 16$$

(36) Find A if $A = x^2$ $x = \frac{3}{4}$

$$A = \left(\frac{3}{4}\right)^2$$

$$A = \left(\frac{3}{4}\right)\left(\frac{3}{4}\right)$$

$$A = \frac{9}{16}$$

(37) Find A if $A = x^3$ $x = \frac{3}{4}$

$$A = \left(\frac{3}{4}\right)^3$$

$$A = \left(\frac{3}{4}\right)\left(\frac{3}{4}\right)\left(\frac{3}{4}\right)$$

$$A = \frac{27}{64}$$

(38) Find A if $A = x^3$ $x = \frac{m}{5}$

$$A = \left(\frac{m}{5}\right)^3$$

$$A = \left(\frac{m}{5}\right)\left(\frac{m}{5}\right)\left(\frac{m}{5}\right)$$

$$A = \frac{m^3}{125}$$

(39) Evaluate $Pr - r$ if $p = -7$, $r = \frac{1}{8}$

$$(-7)\left(\frac{1}{8}\right) - \left(\frac{1}{8}\right) =$$

$$-\frac{7}{8} - \frac{1}{8} =$$

$$\frac{-7-1}{8} =$$

$$-\frac{8}{8} =$$

$$-1 =$$



(40) Evaluate $Pr - r$ if $P = -8$, $r = \frac{1}{5}$

$$(-8)\left(\frac{1}{5}\right) - \left(\frac{1}{5}\right) =$$

$$-\frac{8}{5} - \frac{1}{5} =$$

$$\frac{-8-1}{5} =$$

$$\frac{-9}{5} =$$

(41) If $x = \frac{1}{5}$ and $y = -x$

find $x + y =$

$$\left(\frac{1}{5}\right) + \left(-\frac{1}{5}\right) =$$

$$\frac{1}{5} - \frac{1}{5} =$$

$$\frac{1-1}{5} =$$

$$\frac{0}{5} =$$

$$0 =$$

(42) If $x = -\frac{2}{5}$ and $y = -x$

Find $x - y =$

$$\left(-\frac{2}{5}\right) - \left(-\left(-\frac{2}{5}\right)\right) =$$

$$\left(-\frac{2}{5}\right) - \left(\frac{2}{5}\right) =$$

$$-\frac{2}{5} - \frac{2}{5} =$$

$$\frac{-2-2}{5} =$$

$$\frac{-4}{5} =$$

(43) Simplify

$$X + (2X + 3) =$$

$$X + 2X + 3 =$$

$$1X + 2X + 3 =$$

$$3X + 3 =$$

(44) Simplify

$$X + (4X + 5) =$$

$$X + 4X + 5 =$$

$$1X + 4X + 5 =$$

$$5X + 5 =$$

(45) Simplify

$$d - .12d =$$

$$1.00d - .12d =$$

$$.88d =$$

(46) Simplify

$$d - .25d =$$

$$1.00d - .25d =$$

$$.75d =$$

(47) Simplify

$$P - .20P =$$

$$1.00P - .20P =$$

$$.80P =$$

(48) Simplify

$$.80C - .05(.80C) =$$

$$.80C - .04C =$$

$$.76C =$$

(49) Find

$$P \text{ if } P = 2(L + W)$$

$$L = 10, W = 6$$

$$P = 2(10 + 6)$$

$$P = 2(16)$$

$$P = 32$$



(50) Find Y if $Y = \sqrt{X+1} + 2$

$X = 3$

$$Y = \sqrt{3+1} + 2$$

$$Y = \sqrt{4} + 2$$

$$Y = 2 + 2$$

$$Y = 4$$

(51) Find Y if $Y = \sqrt{X+1} + 2$

$X = 8$

$$Y = \sqrt{8+1} + 2$$

$$Y = \sqrt{9} + 2$$

$$Y = 3 + 2$$

$$Y = 5$$

(52) Find Y if $Y = \sqrt{X+1} + 2$

$X = -1$

$$Y = \sqrt{-1+1} + 2$$

$$Y = \sqrt{0} + 2$$

$$Y = 0 + 2$$

$$Y = 2$$

(53) Find Y if $Y = \frac{3}{2}X + 5$

$X = -\frac{2}{3}$

$$Y = \frac{3}{2}\left(-\frac{2}{3}\right) + 5$$

$$Y = -1 + 5$$

$$Y = 4$$

(54) Find t if $t = \frac{\sqrt{X}}{4}$

$X = 32$

$$t = \frac{\sqrt{32}}{4}$$

$$t = \frac{\sqrt{16 \cdot 2}}{4}$$

$$t = \frac{\sqrt{16}\sqrt{2}}{4}$$

$$t = \frac{4\sqrt{2}}{4}$$

$$t = \sqrt{2}$$

(55.)

Find t if $t = \frac{\sqrt{x}}{4}$

$$x=8$$

$$t = \frac{\sqrt{8}}{4}$$

$$t = \frac{\sqrt{4 \cdot 2}}{4}$$

$$t = \frac{\sqrt{4} \sqrt{2}}{4}$$

$$t = \frac{2 \sqrt{2}}{4}$$

$$t = \frac{\cancel{2} \sqrt{2}}{\cancel{2} \cdot 2}$$

$$t = \frac{\sqrt{2}}{2}$$



(56.)

Find t if $t = \frac{\sqrt{x}}{4}$

$$x=80$$

$$t = \frac{\sqrt{80}}{4}$$

$$t = \frac{\sqrt{16 \cdot 5}}{4}$$

$$t = \frac{\sqrt{16} \sqrt{5}}{4}$$

$$t = \frac{\cancel{4} \sqrt{5}}{\cancel{4}}$$

$$t = \sqrt{5}$$

(57)

Find y if $y = x^2$

$$x = \frac{3}{4}$$

$$y = \left(\frac{3}{4}\right)^2$$

$$y = \left(\frac{3}{\cancel{4}}\right) \left(\frac{3}{\cancel{4}}\right)$$

$$y = \frac{9}{16}$$

(58)

Find d if $d = rt$

$$r = 60, t = 2$$

$$d = (60)(2)$$

$$d = 120$$

12.

(59)

Find m if $m = 10t$

$$t = 4$$

$$m = 10(4)$$

$$m = 40$$

(60)

Find F if $F = \frac{1}{2}mv^2$

$$m = 200, v = 10$$

$$F = \frac{1}{2}(200)(10)^2$$

$$F = \frac{1}{2}(200)(10)(10)$$

$$F = \frac{1}{2}(200)(100)$$

$$F = \frac{1}{2}(20000)$$

$$F = 10000$$

(61)

Find F if $F = ma$

$$m = 100, a = 40$$

$$F = (100)(40)$$

$$F = 4000$$

(62)

Find Y if $Y = \frac{3}{2}X$

$$X = 0$$

$$Y = \frac{3}{2}(0)$$

$$Y = 0$$

(63) Find Y if $Y = \frac{3}{2}X$ $X=2$

$$Y = \frac{3}{2}(2)$$

$$Y = 3$$

(64) Find Y if $Y = \frac{1}{2}X$ $X=0$

$$Y = \frac{1}{2}(0)$$

$$Y = 0$$

(65) Find Y if $Y = \frac{1}{2}X$ $X=2$

$$Y = \frac{1}{2}(2)$$

$$Y = 1$$

(66) Find Y if $Y = X - 2$ $X=0$

$$Y = 0 - 2$$

$$Y = -2$$

(67) Find Y if $Y = X - 2$ $X=1$

$$Y = 1 - 2$$

$$Y = -1$$

(68) Find Y if $Y = X + 2$ $X=0$

$$Y = 0 + 2$$

$$Y = 2$$

(69) Find Y if $Y = X + 2$ $X=1$

$$Y = 1 + 2$$

$$Y = 3$$



(70) Find Y if $Y = X^2$ $X = -1$

$$Y = (-1)^2$$

$$Y = (-1)(-1)$$

$$Y = 1$$



(71) Find Y if $Y = X^2$ $X = 0$

$$Y = (0)^2$$

$$Y = (0)(0)$$

$$Y = 0$$

(72) Find Y if $Y = X^2$ $X = 1$

$$Y = (1)^2$$

$$Y = (1)(1)$$

$$Y = 1$$

(73) Find Y if $Y = -X^2$ $X = -1$

$$Y = -(-1)^2$$

$$Y = -(-1)(-1)$$

$$Y = -(1)$$

$$Y = -1$$

(74) Find Y if $Y = -X^2$ $X = 0$

$$Y = -(0)^2$$

$$Y = -(0)(0)$$

$$Y = -(0)$$

$$Y = 0$$

(75) Find Y if $Y = -X^2$ $X = 1$

$$Y = -(1)^2$$

$$Y = -(1)(1)$$

$$Y = -(1)$$

$$Y = -1$$



(76) Find Y if $Y = 0X + 2$ $X = 4$

$$Y = 0(4) + 2$$

$$Y = 0 + 2$$

$$Y = 2$$

(77) Find Y if $Y = 0X + 2$ $X = 1$

$$Y = 0(1) + 2$$

$$Y = 0 + 2$$

$$Y = 2$$

(78) Find Y if $Y = 2$ $X = 5$

$$Y = 0X + 2 \quad \text{rewrite}$$

$$Y = 0(5) + 2$$

$$Y = 0 + 2$$

$$Y = 2$$

(79) Find Y if $Y = X^2 - 4$ $X = -1$

$$Y = (-1)^2 - 4$$

$$Y = (-1)(-1) - 4$$

$$Y = 1 - 4$$

$$Y = -3$$

80 Find Y if $Y = X^2 - 4$ $X = 0$

$$Y = (0)^2 - 4$$

$$Y = (0)(0) - 4$$

$$Y = 0 - 4$$

$$Y = -4$$

81 Find Y if $Y = X^2 - 4$ $X = 1$

$$Y = (1)^2 - 4$$

$$Y = (1)(1) - 4$$

$$Y = 1 - 4$$

$$Y = -3$$

82 Find Y if $Y = (X+1)(X-3)$ $X = 3$

$$Y = (3+1)(3-3)$$

$$Y = (4)(0)$$

$$Y = 0$$

83 Find Y if $Y = (X+1)(X-3)$ $X = -1$

$$Y = (-1+1)(-1-3)$$

$$Y = (0)(-4)$$

$$Y = 0$$

84 Find Y if $Y = (X+1)(X-3)$ $X = -2$

$$Y = (-2+1)(-2-3)$$

$$Y = (-1)(-5)$$

$$Y = 5$$



(85) Find Y if $Y = X^2 - 2X + 3$

$X = -2$

$$Y = (-2)^2 - 2(-2) + 3$$

$$Y = (-2)(-2) - 2(-2) + 3$$

$$Y = 4 + 4 + 3$$

$$Y = 8 + 3$$

$$Y = 11$$



(86)

Find Y if $Y = X^2 - 2X + 3$

$X = 0$

$$Y = (0)^2 - 2(0) + 3$$

$$Y = (0)(0) - 2(0) + 3$$

$$Y = 0 - 0 + 3$$

$$Y = 3$$

(87)

Find Y if $Y = (X-1)^2 - 4$

$X = 1$

$$Y = (1-1)^2 - 4$$

$$Y = (0)^2 - 4$$

$$Y = (0)(0) - 4$$

$$Y = 0 - 4$$

$$Y = -4$$

(88)

Find Y if $Y = (X-1)^2 - 4$

$X = 0$

$$Y = (0-1)^2 - 4$$

$$Y = (-1)^2 - 4$$

$$Y = (-1)(-1) - 4$$

$$Y = 1 - 4$$

$$Y = -3$$

89.

Find Y if $Y = (X-1)^2 - 4$

$$X = -1$$

$$Y = (-1-1)^2 - 4$$

$$Y = (-2)^2 - 4$$

$$Y = (-2)(-2) - 4$$

$$Y = 4 - 4$$

$$Y = 0$$



90.

Find Y if $Y = \frac{X+1}{X-4}$

$$X = 5$$

$$Y = \frac{5+1}{5-4}$$

$$Y = \frac{6}{1}$$

$$Y = 6$$

91.

Find Y if $Y = \frac{X+1}{X-4}$

$$X = 4$$

$$Y = \frac{4+1}{4-4}$$

$$Y = \frac{5}{0}$$

$$Y = \text{undefined}$$

92.

Find

Y if $Y = \frac{X+1}{X-4}$

$$X = 0$$

$$Y = \frac{0+1}{0-4}$$

$$Y = \frac{1}{-4}$$

$$Y = -\frac{1}{4}$$

(93) Find Y if $Y = \frac{X-1}{X^2-4}$

$X = -1$

$$Y = \frac{(-1)-1}{(-1)^2-4}$$

$$Y = \frac{-1-1}{(-1)(-1)-4}$$

$$Y = \frac{-2}{1-4}$$

$$Y = \frac{-2}{-3}$$

$$Y = \frac{2}{3}$$

(94) Find Y if $Y = \frac{X-1}{X^2-4}$

$X = 1$

$$Y = \frac{(1)-1}{(1)^2-4}$$

$$Y = \frac{1-1}{(1)(1)-4}$$

$$Y = \frac{0}{1-4}$$

$$Y = \frac{0}{-3}$$

$$Y = 0$$

19.

(95) Find Y if $Y = \frac{X-1}{X^2-4}$

$X=2$

$$Y = \frac{(2)-1}{(2)^2-4}$$

$$Y = \frac{2-1}{(2)(2)-4}$$

$$Y = \frac{1}{4-4}$$

$$Y = \frac{1}{0}$$

$Y = \text{undefined}$

(96) Find Y if $Y = \frac{X-1}{X^2-4}$

$X=-4$

$$Y = \frac{(-4)-1}{(-4)^2-4}$$

$$Y = \frac{-4-1}{(-4)(-4)-4}$$

$$Y = \frac{-5}{16-4}$$

$$Y = \frac{-5}{12}$$

(97) Find Y if $Y = 2X^2 - 3X + 1$

$X=-1$

$$Y = 2(-1)^2 - 3(-1) + 1$$

$$Y = 2(-1)(-1) - 3(-1) + 1$$

$$Y = 2(1) - 3(-1) + 1$$

$$Y = 2 + 3 + 1$$

$$Y = 5 + 1$$

$$Y = 6$$

(98) Find y if $y = 2x^2 - 3x + 1$

$x = 0$

$$y = 2(0)^2 - 3(0) + 1$$

$$y = 2(0)(0) - 3(0) + 1$$

$$y = 2(0) - 3(0) + 1$$

$$y = 0 - 0 + 1$$

$$y = 1$$



(99) Find y if $y = 2x^2 - 3x + 1$

$x = 1$

$$y = 2(1)^2 - 3(1) + 1$$

$$y = 2(1)(1) - 3(1) + 1$$

$$y = 2(1) - 3(1) + 1$$

$$y = 2 - 3 + 1$$

$$y = -1 + 1$$

$$y = 0$$

(100) Find y if $y = x^{-2}$

$x = 4$

$$y = (4)^{-2}$$

$$y = \frac{1}{4^2}$$

$$y = \frac{1}{4 \cdot 4}$$

$$y = \frac{1}{16}$$

(101) Find y if $y = x^{-2}$

$x = 6$

$$y = (6)^{-2}$$

$$y = \frac{1}{6^2}$$

$$y = \frac{1}{6 \cdot 6}$$

$$y = \frac{1}{36}$$

102.

Find y if $y = x^{-2}$

$$x = 8$$

$$y = (8)^{-2}$$

$$y = \frac{1}{8^2}$$

$$y = \frac{1}{8 \cdot 8}$$

$$y = \frac{1}{64}$$

22

103.

Find y if $y = \frac{1}{x} + \frac{4}{x}$

$$x = \frac{1}{2}$$

$$y = \frac{1}{\frac{1}{2}} + \frac{4}{\frac{1}{2}}$$

$$y = \frac{\frac{1}{1}}{\frac{1}{2}} + \frac{\frac{4}{1}}{\frac{1}{2}}$$

$$y = \frac{1}{1} \cdot \frac{2}{1} + \frac{4}{1} \cdot \frac{2}{1}$$

$$y = \frac{2}{1} + \frac{8}{1}$$

$$y = 2 + 8$$

$$y = 10$$

(104)

Find Y if $Y = \frac{1}{x} + \frac{8}{x}$

$x = \frac{1}{3}$

$$Y = \frac{1}{\frac{1}{3}} + \frac{8}{\frac{1}{3}}$$

$$Y = \frac{1}{\frac{1}{3}} + \frac{8 \cdot 3}{1}$$

$$Y = \frac{1 \cdot 3}{1} + \frac{8 \cdot 3}{1}$$

$$Y = \frac{3}{1} + \frac{24}{1}$$

$$Y = 3 + 24$$

$$Y = 27$$

27

(105)

Find Y if $Y = \frac{2}{x} + \frac{3}{x}$

$x = \frac{1}{4}$

$$Y = \frac{2}{\frac{1}{4}} + \frac{3}{\frac{1}{4}}$$

$$Y = \frac{2 \cdot 4}{1} + \frac{3 \cdot 4}{1}$$

$$Y = \frac{8}{1} + \frac{12}{1}$$

$$Y = 8 + 12$$

$$Y = 20$$

$$Y = 20$$

(106)

$$x+1=2$$

$$x+1-1=2-1$$

$$x=1$$

(107)

$$x-1=3$$

$$x-1+1=3+1$$

$$x=4$$

(108)

$$2x=4$$

$$\frac{2x}{2} = \frac{4}{2}$$

$$x=2$$

(109)

$$\frac{x}{3} = 6$$

$$\frac{x}{3}(3) = 6(3)$$

$$x=18$$

(110)

$$2x+1=7$$

$$2x+1-1=7-1$$

$$2x=6$$

$$\frac{2x}{2} = \frac{6}{2}$$

$$x=3$$

(111)

$$2x-1=5$$

$$2x-1+1=5+1$$

$$2x=6$$

$$\frac{2x}{2} = \frac{6}{2}$$

$$x=3$$

24

$$\textcircled{112.} \quad x+1 = -1$$

$$x+1-1 = -1-1$$

$$\textcircled{x = -2}$$

$$\textcircled{113.} \quad x-8 = -9$$

$$x-8+8 = -9+8$$

$$\textcircled{x = -1}$$

$$\textcircled{114.} \quad -2x + 4 = 12$$

$$-2x + 4 - 4 = 12 - 4$$

$$-2x = 8$$

$$\frac{-2x}{-2} = \frac{8}{-2}$$

$$\textcircled{x = -4}$$

$$\textcircled{115.} \quad -2(x+1) = -12$$

$$-2x - 2 = -12$$

$$-2x - 2 + 2 = -12 + 2$$

$$-2x = -10$$

$$\frac{-2x}{-2} = \frac{-10}{-2}$$

$$\textcircled{x = 5}$$

$$\textcircled{116.} \quad -2(x-4) = 16$$

$$-2x + 8 = 16$$

$$-2x + 8 - 8 = 16 - 8$$

$$-2x = 8$$

$$\frac{-2x}{-2} = \frac{8}{-2}$$

$$\textcircled{x = -4}$$



$$(117) \quad \frac{x}{2} = \frac{x+8}{3}$$

$$3(x) = 2(x+8) \quad \text{Cross multiply}$$

$$3x = 2x + 16$$

$$3x - 2x = 2x + 16 - 2x$$

$$x = 16$$

$$(118) \quad \frac{x-1}{x} = 10$$

$$\frac{x-1}{x} = \frac{10}{1}$$

$$1(x-1) = 10(x) \quad \text{Cross multiply}$$

$$1x - 1 = 10x$$

$$1x - 1 + 1 = 10x + 1$$

$$1x = 10x + 1$$

$$1x - 10x = 10x + 1 - 10x$$

$$-9x = 1$$

$$\frac{-9x}{-9} = \frac{1}{-9}$$

$$x = -\frac{1}{9}$$



119. $\frac{x+2}{x} = 17$

$$\frac{x+2}{x} = \frac{17}{1}$$

$1(x+2) = 17(x)$ Cross multiply

$$1x + 2 = 17x$$

$$1x + \cancel{2} - \cancel{2} = 17x - 2$$

$$1x = 17x - 2$$

$$1x - 17x = \cancel{17x} - 2 - \cancel{17x}$$

$$-16x = -2$$

$$\frac{-16x}{-16} = \frac{-2}{-16}$$

$$x = \frac{-2(1)}{-2(8)}$$

$x = \frac{1}{8}$

120. $\frac{x}{2} = \frac{x+12}{3}$

$3(x) = 2(x+12)$ Cross mult

$$3x = 2x + 24$$

$$3x - 2x = \cancel{2x} + 24 - \cancel{2x}$$

$x = 24$

27.

$$(121) \quad \frac{6x}{3} = 24$$

$$2x = 24$$

$$\frac{2x}{2} = \frac{24}{2}$$

$$x = 12$$

$$(122) \quad 1 + \frac{8}{x} = -3$$

$$1 + \frac{8}{x} - 1 = -3 - 1$$

$$\frac{8}{x} = -4$$

$$\frac{8}{x} = \frac{-4}{1}$$

$$8(1) = -4(x) \quad \text{Cross multipl.}$$

$$8 = -4x$$

$$\frac{8}{-4} = \frac{-4x}{-4}$$

$$-2 = x$$

$$(123) \quad 8x + 4 = 6x$$

$$8x + \cancel{4} - 4 = 6x - 4$$

$$8x = 6x - 4$$

$$8x - 6x = 6x - 4 - 6x$$

$$2x = -4$$

$$\frac{2x}{2} = \frac{-4}{2}$$

$$x = -2$$



$$(124) \quad 9 - x = 2(x - 9)$$

$$9 - x = 2x - 18$$

$$\cancel{9} - x - \cancel{9} = 2x - 18 - 9$$

$$-x = 2x - 27$$

$$-x - 2x = 2x - 27 - 2x$$

$$-1x - 2x = -27$$

$$-3x = -27$$

$$\frac{-3x}{-3} = \frac{-27}{-3}$$

$$x = 9$$



$$(125) \quad 3(2x - 9) = 6$$

$$6x - 27 = 6$$

$$6x - \cancel{27} + \cancel{27} = 6 + 27$$

$$6x = 33$$

$$\frac{6x}{6} = \frac{33}{6}$$

$$x = \frac{\cancel{3} \cdot 11}{\cancel{3} \cdot 2}$$

$$x = \frac{11}{2}$$

$$(126) \quad 9x - 1 = x \quad \text{then} \quad 16x =$$

$$9x - \cancel{x} + \cancel{x} = x + 1$$

$$9x = x + 1$$

$$9x - x = x + 1 - x$$

$$8x = 1$$

$$\frac{8x}{8} = \frac{1}{8}$$

$$\rightarrow x = \frac{1}{8}$$

$$16x =$$

$$16\left(\frac{1}{8}\right) =$$

$$2(1) =$$

$$2$$

Subst

127.

$$7x - 3 = 5x + 4$$

$$7x - \cancel{3} + 3 = 5x + 4 + 3$$

$$7x = 5x + 7$$

$$7x - 5x = \cancel{5x} + 7 - \cancel{5x}$$

$$2x = 7$$

$$\frac{2x}{2} = \frac{7}{2}$$

$$x = \frac{7}{2}$$



128.

$$7x - 3 = 5x - 3$$

$$7x - \cancel{3} + 3 = 5x - \cancel{3} + 3$$

$$7x = 5x$$

$$7x - 5x = 5x - 5x$$

$$2x = 0$$

$$\frac{2x}{2} = \frac{0}{2}$$

$$x = 0$$

129.

$$50x + 300 = 900$$

$$50x + \cancel{300} - \cancel{300} = 900 - 300$$

$$50x = 600$$

$$\frac{50x}{50} = \frac{600}{50}$$

$$x = 12$$

$$\begin{aligned} (130) \quad 4 + 3x &= -3 \\ 4 + 3x - 4 &= -3 - 4 \\ 3x &= -7 \\ \frac{3x}{3} &= \frac{-7}{3} \end{aligned}$$

$$x = -\frac{7}{3}$$



$$\begin{aligned} (131) \quad 6(x-2) - 12 &= 3x \\ 6x - 12 - 12 &= 3x \\ 6x - 24 &= 3x \\ 6x - 24 + 24 &= 3x + 24 \\ 6x &= 3x + 24 \\ 6x - 3x &= 3x + 24 - 3x \\ 3x &= 24 \\ \frac{3x}{3} &= \frac{24}{3} \end{aligned}$$

$$x = 8$$

$$(132) \quad \frac{3}{2}x + 8 = -\frac{3}{2}x + 3 \quad \text{LCD} = 2$$

$$\frac{3x}{2}(2) + \frac{8}{1}(2) = \frac{-3x}{2}(2) + 3(2)$$

$$3x + 16 = -3x + 6$$

$$3x + 16 - 16 = -3x + 6 - 16$$

$$3x = -3x - 10$$

$$3x + 3x = -3x - 10 + 3x$$

$$6x = -10$$

$$\frac{6x}{6} = \frac{-10}{6}$$

$$x = \frac{2(-5)}{2(3)}$$

$$x = -\frac{5}{3}$$

(133) $\frac{2}{5x} + \frac{1}{x} = 14$ LCD = $5x$

$$\frac{2}{\cancel{5x}}(\cancel{5x}) + \frac{1}{\cancel{x}}(\cancel{5x}) = 14(5x)$$

$$2 + 1(5) = 70x$$

$$2 + 5 = 70x$$

$$7 = 70x$$

$$\frac{7}{70} = \frac{\cancel{70}x}{\cancel{70}}$$

$$\frac{7 \cdot 1}{7 \cdot 10} = x$$

$$\frac{1}{10} = x$$

(134) $\frac{2}{5x} + \frac{1}{x} = 7$ LCD = $5x$

$$\frac{2}{\cancel{5x}}(\cancel{5x}) + \frac{1}{\cancel{x}}(\cancel{5x}) = 7(5x)$$

$$2 + 1(5) = 35x$$

$$2 + 5 = 35x$$

$$7 = 35x$$

$$\frac{7}{35} = \frac{\cancel{35}x}{\cancel{35}}$$

$$\frac{7 \cdot 1}{7 \cdot 5} = x$$

$$\frac{1}{5} = x$$



(135)

$$7.95X + 4.25(30 - X) = 164.50$$

$$7.95X + 127.50 - 4.25X = 164.50$$

$$3.70X + 127.50 = 164.50$$

$$3.70X + 127.50 - 127.50 = 164.50 - 127.50$$

$$3.70X = 37$$

$$\frac{3.70X}{3.70} = \frac{37}{3.70}$$

$$X = 10$$

(136)

$$2X < 10$$

$$\frac{2X}{2} < \frac{10}{2}$$

$$X < 5$$

(137)

$$-3X < 12$$

$$\frac{-3X}{-3} > \frac{12}{-3}$$

Turn the alligator

$$X > -4$$

(138)

$$4X < -16$$

$$\frac{4X}{4} < \frac{-16}{4}$$

$$X < -4$$

(139)

$$-5X < -30$$

$$\frac{-5X}{-5} > \frac{-30}{-5}$$

Turn the alligator

$$X > 6$$

33

$$(140) \quad x - 2 < -6$$

$$x - \cancel{2} + \cancel{2} < -6 + 2$$

$$x < -4$$

$$(141) \quad x + 2 < -4$$

$$x + \cancel{2} - \cancel{2} < -4 - 2$$

$$x < -6$$

$$(142) \quad 2x + 1 < 9$$

$$2x + \cancel{1} - \cancel{1} < 9 - 1$$

$$2x < 8$$

$$\frac{2x}{2} < \frac{8}{2}$$

$$x < 4$$

$$(143) \quad 2x - 1 < 5$$

$$2x - \cancel{1} + \cancel{1} < 5 + 1$$

$$2x < 6$$

$$\frac{2x}{2} < \frac{6}{2}$$

$$x < 3$$

$$(144) \quad -2x + 10 < 30$$

$$-2x + \cancel{10} - \cancel{10} < 30 - 10$$

$$-2x < 20$$

$$\frac{-2x}{-2} > \frac{20}{-2}$$

Turn the alligator

$$x > -10$$



145.

$$-4x + 8 < -12$$

$$-4x + 8 - 8 < -12 - 8$$

$$-4x < -20$$

$$\frac{-4x}{-4} > \frac{-20}{-4}$$

turn the alligator

$$x > 5$$

146.

$$4x + 2 < 2x + 12$$

$$4x + 2 - 2 < 2x + 12 - 2$$

$$4x < 2x + 10$$

$$4x - 2x < 2x + 10 - 2x$$

$$2x < 10$$

$$\frac{2x}{2} < \frac{10}{2}$$

$$x < 5$$

147.

$$2x + 1 < 4x - 9$$

$$2x + 1 - 1 < 4x - 9 - 1$$

$$2x < 4x - 10$$

$$2x - 4x < 4x - 10 - 4x$$

$$-2x < -10$$

$$\frac{-2x}{-2} > \frac{-10}{-2}$$

turn the alligator

$$x > 5$$

148. $-2(x+1) < 20$
 $-2x-2 < 20$
 $-2x-\cancel{x}+\cancel{x} < 20+2$
 $-2x < 22$

$\frac{-2x}{-2} > \frac{22}{-2}$ Turn the alligator

$x > -11$

149. $2(x-1) < -8$
 $2x-2 < -8$
 $2x-\cancel{x}+\cancel{x} < -8+2$
 $2x < -6$

$\frac{2x}{2} < \frac{-6}{2}$

$x < -3$

150. $-2(x-1) < 2x+42$
 $-2x+2 < 2x+42$
 $-2x+\cancel{x}-\cancel{x} < 2x+42-2$

$-2x < 2x+40$

$-2x-2x < 2x+40-\cancel{2x}$

$-4x < 40$

$\frac{-4x}{-4} > \frac{40}{-4}$ Turn the alligator

$x > -10$



(151)

$$2x+3 < x$$

$$2x+3-3 < x-3$$

$$2x < x-3$$

$$2x-x < x-3-x$$

$$2x-1x < -3$$

$$x < -3$$

(152)

$$\frac{x}{5} + \frac{3x}{10} > 0$$

$$LCD = 10$$

$$\frac{x}{5}(10) + \frac{3x}{10}(10) > 0(10)$$

$$x(2) + 3x(1) > 0$$

$$2x + 3x > 0$$

$$5x > 0$$

$$\frac{5x}{5} > \frac{0}{5}$$

$$x > 0$$

(153)

$$\frac{x}{5} + \frac{3x}{10} > 20$$

$$LCD = 10$$

$$\frac{x}{5}(10) + \frac{3x}{10}(10) > 20(10)$$

$$x(2) + 3x(1) > 200$$

$$2x + 3x > 200$$

$$5x > 200$$

$$\frac{5x}{5} > \frac{200}{5}$$

$$x > 40$$



154. $\frac{x}{5} + \frac{3x}{10} > 4$ LCD = 10

$$\frac{x}{5}(10) + \frac{3x}{10}(10) > 4(10)$$

$$x(2) + 3x(1) > 40$$

$$2x + 3x > 40$$

$$5x > 40$$

$$\frac{5x}{5} > \frac{40}{5}$$

$$x > 8$$

38

155. $d = rt$ $r =$

$$\frac{d}{t} = \frac{rt}{t}$$

$$\frac{d}{t} = r$$

156. $d = rt$ $t =$

$$\frac{d}{r} = \frac{rt}{r}$$

$$\frac{d}{r} = t$$

157. $m = 10t$ $t =$

$$\frac{m}{10} = \frac{10t}{10}$$

$$\frac{m}{10} = t$$

$$(158) \quad M = 40t \quad t =$$

$$\frac{M}{40} = \frac{40t}{40}$$

$$\frac{M}{40} = t$$

39

$$(159) \quad ax + by = c \quad x =$$

$$ax + by - by = c - by$$

$$ax = c - by$$

$$\frac{ax}{a} = \frac{c - by}{a}$$

$$x = \frac{c - by}{a}$$

$$(160) \quad ax + by = c \quad y =$$

$$ax + by - ax = c - ax$$

$$by = c - ax$$

$$\frac{by}{b} = \frac{c - ax}{b}$$

$$y = \frac{c - ax}{b}$$

$$(161) \quad P = 2L + 2W \quad L =$$

$$P - 2W = 2L + 2W - 2W$$

$$P - 2W = 2L$$

$$\frac{P - 2W}{2} = \frac{2L}{2}$$

$$\text{OR} \quad \frac{P}{2} - \frac{2W}{2} = L$$

$$\text{OR} \quad \frac{P}{2} - W = L$$

$$\frac{P - 2W}{2} = L$$

162

$$y = mx + b$$

$x =$

$$y - b = mx + \cancel{b - b}$$

$$y - b = mx$$

$$\frac{y - b}{m} = \frac{mx}{m}$$

$$\frac{y - b}{m} = x$$

163

$$y = x^2$$

$x =$

$$\pm \sqrt{y} = \sqrt{x^2}$$

$$\pm \sqrt{y} = x$$

$$x = \pm \sqrt{y}$$

$$\text{OR } x = -\sqrt{y} \text{ OR } x = \sqrt{y}$$

164

$$y = mx^2$$

$x =$

$$\frac{y}{m} = \frac{mx^2}{m}$$

$$\frac{y}{m} = x^2$$

$$\pm \sqrt{\frac{y}{m}} = \sqrt{x^2}$$

$$\pm \sqrt{\frac{y}{m}} = x$$

$$\text{OR } x = -\sqrt{\frac{y}{m}} \text{ OR } x = \sqrt{\frac{y}{m}}$$



(165)

$$y = \frac{1}{5}mx^2$$

$x =$

$$5y = 5 \left(\frac{1}{5} \right) mx^2$$

$$5y = mx^2$$

$$\frac{5y}{m} = \frac{mx^2}{m}$$

$$\frac{5y}{m} = x^2$$

$$\pm \sqrt{\frac{5y}{m}} = \sqrt{x^2}$$

$$\pm \sqrt{\frac{5y}{m}} = x$$

$$\text{OR } x = -\sqrt{\frac{5y}{m}} \text{ OR } x = \sqrt{\frac{5y}{m}}$$



(166)

$$2x + 2y = m$$

find $x + y =$

$$\frac{2x}{2} + \frac{2y}{2} = \frac{m}{2}$$

$$x + y = \frac{m}{2}$$

(167)

$$4x + 6y = m$$

find $2x + 3y =$

$$\frac{4x}{2} + \frac{6y}{2} = \frac{m}{2}$$

$$2x + 3y = \frac{m}{2}$$

(168)

$$4x^2 + 4y^2 = m$$

find $x^2 + y^2 =$

$$\frac{4x^2}{4} + \frac{4y^2}{4} = \frac{m}{4}$$

$$x^2 + y^2 = \frac{m}{4}$$

(169) $4x^2 + 14y^2 = m$ find $2x^2 + 7y^2 =$

$$\frac{4x^2}{2} + \frac{14y^2}{2} = \frac{m}{2}$$

$$2x^2 + 7y^2 = \frac{m}{2}$$

42

(170) $10x^2 - 35y^2 = m$ find $2x^2 - 7y^2 =$

$$\frac{10x^2}{5} - \frac{35y^2}{5} = \frac{m}{5}$$

$$2x^2 - 7y^2 = \frac{m}{5}$$

(171) $f(x) = 2x$ $f(0)$

$$f(0) = 2(0)$$

$$f(0) = 0$$

(172) $f(x) = 2x$ $f(1)$

$$f(1) = 2(1)$$

$$f(1) = 2$$

(173) $f(x) = x - 2$ $f(0)$

$$f(0) = 0 - 2$$

$$f(0) = -2$$

(174) $f(x) = x - 2$ $f(1)$

$$f(1) = 1 - 2$$

$$f(1) = -1$$

175. $f(x) = \frac{1}{2}x$ $f(0)$
 $f(0) = \frac{1}{2}(0)$

$f(0) = 0$

176. $f(x) = \frac{1}{2}x$ $f(2)$
 $f(2) = \frac{1}{2}(2)$

$f(2) = 1$

177. $f(x) = \frac{3}{2}x$ $f(0)$
 $f(0) = \frac{3}{2}(0)$

$f(0) = 0$

178. $f(x) = \frac{3}{2}x$ $f(2)$
 $f(2) = \frac{3}{2}(2)$

$f(2) = 3$

179. $f(x) = \frac{2}{3}x$ $f(0)$
 $f(0) = \frac{2}{3}(0)$

$f(0) = 0$

180. $f(x) = \frac{2}{3}x$ $f(3)$
 $f(3) = \frac{2}{3}(3)$

$f(3) = 2$



(181) $f(x) = 2$ $f(0)$

$f(0) = 2$

(182) $f(x) = 2$ $f(1)$

$f(1) = 2$

(183) $f(x) = -2$ $f(0)$

$f(0) = -2$

(184) $f(x) = -2$ $f(1)$

$f(1) = -2$

(185) $f(x) = 4$ $f(0)$

$f(0) = 4$

(186) $f(x) = 4$ $f(1)$

$f(1) = 4$

(187) $f(x) = 2x + 4$ $f(0)$

$f(0) = 2(0) + 4$

$f(0) = 0 + 4$

$f(0) = 4$

(188) $f(x) = 2x + 4$ $f(1)$

$f(1) = 2(1) + 4$

$f(1) = 2 + 4$

$f(1) = 6$



(189) $f(x) = 2x - 4$ $f(0)$

$$f(0) = 2(0) - 4$$

$$f(0) = 0 - 4$$

$$f(0) = -4$$

(190) $f(x) = 2x - 4$ $f(1)$

$$f(1) = 2(1) - 4$$

$$f(1) = 2 - 4$$

$$f(1) = -2$$

(191) $f(x) = \frac{2}{3}x + 1$ $f(0)$

$$f(0) = \frac{2}{3}(0) + 1$$

$$f(0) = 0 + 1$$

$$f(0) = 1$$

(192) $f(x) = \frac{2}{3}x + 1$ $f(3)$

$$f(3) = \frac{2}{3}(3) + 1$$

$$f(3) = 2 + 1$$

$$f(3) = 3$$

(193) $f(x) = -\frac{2}{3}x + 1$ $f(0)$

$$f(0) = -\frac{2}{3}(0) + 1$$

$$f(0) = 0 + 1$$

$$f(0) = 1$$

(194) ✓

$$f(x) = -\frac{2}{3}x + 1 \quad f(3)$$

$$f(3) = -\frac{2}{3}(3) + 1$$

$$f(3) = -2 + 1$$

$$f(3) = -1$$



195.

$$f(x) = x^2$$

$$f(-1)$$

$$f(-1) = (-1)^2$$

$$f(-1) = (-1)(-1)$$

$$f(-1) = 1$$

196

$$f(x) = x^2$$

$$f(0)$$

$$f(0) = (0)^2$$

$$f(0) = (0)(0)$$

$$f(0) = 0$$

197.

$$f(x) = x^2$$

$$f(-1)$$

$$f(-1) = (-1)^2$$

$$f(-1) = (-1)(-1)$$

$$f(-1) = 1$$

198.

$$f(x) = -x^2$$

$$f(-1)$$

$$f(-1) = -(-1)^2$$

$$f(-1) = -(-1)(-1)$$

$$f(-1) = -(1)$$

$$f(-1) = -1$$

199

$$f(x) = -x^2$$

$$f(0)$$

$$f(0) = -(0)^2$$

$$f(0) = -(0)(0)$$

$$f(0) = -(0)$$

$$f(0) = 0$$



(200)

$$f(x) = -x^2$$

$$f(1)$$

$$f(1) = -(1)^2$$

$$f(1) = -(1)(1)$$

$$f(1) = -(1)$$

$$f(1) = -1$$

(201)

$$f(x) = x^2 - 4$$

$$f(-1)$$

$$f(-1) = (-1)^2 - 4$$

$$f(-1) = (-1)(-1) - 4$$

$$f(-1) = 1 - 4$$

$$f(-1) = -3$$

(202)

$$f(x) = x^2 - 4$$

$$f(0)$$

$$f(0) = (0)^2 - 4$$

$$f(0) = (0)(0) - 4$$

$$f(0) = 0 - 4$$

$$f(0) = -4$$

(203)

$$f(x) = x^2 - 4$$

$$f(1)$$

$$f(1) = (1)^2 - 4$$

$$f(1) = (1)(1) - 4$$

$$f(1) = 1 - 4$$

$$f(1) = -3$$

(47)

204.

$$f(x) = x^2 + 4$$

$$f(-1)$$

$$f(-1) = (-1)^2 + 4$$

$$f(-1) = (-1)(-1) + 4$$

$$f(-1) = 1 + 4$$

$$f(-1) = 5$$



205.

$$f(x) = x^2 + 4$$

$$f(0)$$

$$f(0) = (0)^2 + 4$$

$$f(0) = (0)(0) + 4$$

$$f(0) = 0 + 4$$

$$f(0) = 4$$

206.

$$f(x) = x^2 + 4$$

$$f(1)$$

$$f(1) = (1)^2 + 4$$

$$f(1) = (1)(1) + 4$$

$$f(1) = 1 + 4$$

$$f(1) = 5$$

207.

$$f(x) = (x+1)(x-3)$$

$$f(-1)$$

$$f(-1) = (-1+1)(-1-3)$$

$$f(-1) = (0)(-4)$$

$$f(-1) = 0$$

$$(208) \quad f(x) = (x+1)(x-3)$$

$$f(0) = (0+1)(0-3)$$

$$f(0) = (1)(-3)$$

$$f(0) = -3$$

$$f(0)$$



$$(209) \quad f(x) = (x+1)(x-3)$$

$$f(-2) = (-2+1)(-2-3)$$

$$f(-2) = (-1)(-5)$$

$$f(-2) = 5$$

$$f(-2)$$

$$(210) \quad f(x) = (x-1)^2 - 4$$

$$f(-1) = (-1-1)^2 - 4$$

$$f(-1) = (-2)^2 - 4$$

$$f(-1) = (-2)(-2) - 4$$

$$f(-1) = 4 - 4$$

$$f(-1) = 0$$

$$f(-1)$$

$$(211) \quad f(x) = (x-1)^2 - 4$$

$$f(0) = (0-1)^2 - 4$$

$$f(0) = (-1)^2 - 4$$

$$f(0) = (-1)(-1) - 4$$

$$f(0) = 1 - 4$$

$$f(0) = -3$$

$$f(0)$$

212 $f(x) = (x-1)^2 - 4$

$f(1)$

$$f(1) = (1-1)^2 - 4$$

$$f(1) = (0)^2 - 4$$

$$f(1) = (0)(0) - 4$$

$$f(1) = 0 - 4$$

$$f(1) = -4$$



213. $f(x) = -(x+1)^2 + 4$

$f(-1)$

$$f(-1) = -(-1+1)^2 + 4$$

$$f(-1) = -(0)^2 + 4$$

$$f(-1) = -(0)(0) + 4$$

$$f(-1) = -(0) + 4$$

$$f(-1) = 0 + 4$$

$$f(-1) = 4$$

214. $f(x) = -(x+1)^2 + 4$

$f(0)$

$$f(0) = -(0+1)^2 + 4$$

$$f(0) = -(1)^2 + 4$$

$$f(0) = -(1)(1) + 4$$

$$f(0) = -(1) + 4$$

$$f(0) = -1 + 4$$

$$f(0) = 3$$

$$(215) \quad f(x) = -(x+1)^2 + 4$$

$$f(1)$$

$$f(1) = -(1+1)^2 + 4$$

$$f(1) = -(2)^2 + 4$$

$$f(1) = -(2)(2) + 4$$

$$f(1) = -(4) + 4$$

$$f(1) = -4 + 4$$

$$f(1) = 0$$



$$(216) \quad f(x) = x^2 - 2x - 3$$

$$f(-1)$$

$$f(-1) = (-1)^2 - 2(-1) - 3$$

$$f(-1) = (-1)(-1) - 2(-1) - 3$$

$$f(-1) = 1 + 2 - 3$$

$$f(-1) = 3 - 3$$

$$f(-1) = 0$$

$$(217) \quad f(x) = x^2 - 2x - 3$$

$$f(0) =$$

$$f(0) = (0)^2 - 2(0) - 3$$

$$f(0) = (0)(0) - 2(0) - 3$$

$$f(0) = 0 - 0 - 3$$

$$f(0) = -3$$

$$(218) \quad f(x) = x^2 - 2x - 3$$

$$f(1) = (1)^2 - 2(1) - 3$$

$$f(1) = (1)(1) - 2(1) - 3$$

$$f(1) = 1 - 2 - 3$$

$$f(1) \rightarrow$$

$$f(1) = -1 - 3$$

$$f(1) = -4$$

219

$$f(x) = -x^2 + 2x + 1$$

$$f(-1)$$

$$f(-1) = -(-1)^2 + 2(-1) + 1$$

$$f(-1) = -(-1)(-1) + 2(-1) + 1$$

$$f(-1) = -(1) + 2(-1) + 1$$

$$f(-1) = -1 - 2 + 1$$

$$f(-1) = -3 + 1$$

$$f(-1) = -2$$



220

$$f(x) = -x^2 + 2x + 1$$

$$f(0)$$

$$f(0) = -(0)^2 + 2(0) + 1$$

$$f(0) = -(0)(0) + 2(0) + 1$$

$$f(0) = -(0) + 0 + 1$$

$$f(0) = 1$$

221

$$f(x) = -x^2 + 2x + 1$$

$$f(1)$$

$$f(1) = -(1)^2 + 2(1) + 1$$

$$f(1) = -(1)(1) + 2(1) + 1$$

$$f(1) = -(1) + 2(1) + 1$$

$$f(1) = -1 + 2 + 1$$

$$f(1) = 1 + 1$$

$$f(1) = 2$$

222 $f(x) = 2x^2 + 3x + 1$ $f(-1)$

$$f(-1) = 2(-1)^2 + 3(-1) + 1$$

$$f(-1) = 2(-1)(-1) + 3(-1) + 1$$

$$f(-1) = 2(1) + 3(-1) + 1$$

$$f(-1) = 2 - 3 + 1$$

$$f(-1) = -1 + 1$$

$$f(-1) = 0$$



223 $f(x) = 2x^2 + 3x + 1$ $f(0)$

$$f(0) = 2(0)^2 + 3(0) + 1$$

$$f(0) = 2(0)(0) + 3(0) + 1$$

$$f(0) = 2(0) + 3(0) + 1$$

$$f(0) = 0 + 0 + 1$$

$$f(0) = 1$$

224 $f(x) = 2x^2 + 3x + 1$ $f(1)$

$$f(1) = 2(1)^2 + 3(1) + 1$$

$$f(1) = 2(1)(1) + 3(1) + 1$$

$$f(1) = 2(1) + 3(1) + 1$$

$$f(1) = 2 + 3 + 1$$

$$f(1) = 6$$

(225) $f(x) = -2x^2 - 2x - 1$ $f(-1)$

$$f(-1) = -2(-1)^2 - 2(-1) - 1$$

$$f(-1) = -2(-1)(-1) - 2(-1) - 1$$

$$f(-1) = -2(1) - 2(-1) - 1$$

$$f(-1) = -2 + 2 - 1$$

$$f(-1) = -1$$



(226) $f(x) = -2x^2 - 2x - 1$ $f(0)$

$$f(0) = -2(0)^2 - 2(0) - 1$$

$$f(0) = -2(0)(0) - 2(0) - 1$$

$$f(0) = -2(0) - 2(0) - 1$$

$$f(0) = 0 + 0 - 1$$

$$f(0) = -1$$

(227) $f(x) = -2x^2 - 2x - 1$ $f(1)$

$$f(1) = -2(1)^2 - 2(1) - 1$$

$$f(1) = -2(1)(1) - 2(1) - 1$$

$$f(1) = -2(1) - 2(1) - 1$$

$$f(1) = -2 - 2 - 1$$

$$f(1) = -5$$

$$(228) \quad f(x) = \frac{x+1}{x-4}$$

$$f(-1)$$

$$f(-1) = \frac{-1+1}{-1-4}$$

$$f(-1) = \frac{0}{-5}$$

$$f(-1) = 0$$



$$(229) \quad f(x) = \frac{x+1}{x-4}$$

$$f(1)$$

$$f(1) = \frac{1+1}{1-4}$$

$$f(1) = \frac{2}{-3}$$

$$f(1) = -\frac{2}{3}$$

$$(230) \quad f(x) = \frac{x+1}{x-4}$$

$$f(4)$$

$$f(4) = \frac{4+1}{4-4}$$

$$f(4) = \frac{5}{0}$$

$$f(4) = \text{undefined}$$

$$(231) \quad f(x) = \frac{x-1}{x^2-4}$$

$$f(-2)$$

$$f(-2) = \frac{(-2)-1}{(-2)^2-4}$$

$$f(-2) = \frac{-2-1}{(-2)(-2)-4}$$

$$f(-2) = \frac{-3}{4-4}$$

$$f(-2) = \frac{-3}{0}$$

$$f(-2) = \text{undefined}$$

(232) $f(x) = \frac{x-1}{x^2-4}$ $f(2)$

$$f(2) = \frac{(2)-1}{(2)^2-4}$$

$$f(2) = \frac{2-1}{(2)(2)-4}$$

$$f(2) = \frac{1}{4-4}$$

$$f(2) = \frac{1}{0}$$

$$f(2) = \text{undefined}$$

(233) $f(x) = \frac{x-1}{x^2-4}$ $f(5)$

$$f(5) = \frac{(5)-1}{(5)^2-4}$$

$$f(5) = \frac{5-1}{(5)(5)-4}$$

$$f(5) = \frac{4}{25-4}$$

$$f(5) = \frac{4}{21}$$

(234) $f(x) = \frac{x-1}{x^2-4}$ Find $f(-5)$

$$f(-5) = \frac{(-5)-1}{(-5)^2-4}$$

$$f(-5) = \frac{-5-1}{(-5)(-5)-4}$$

$$f(-5) = \frac{-6}{25-4}$$

$$f(-5) = \frac{-6}{21}$$

$$f(-5) = \frac{3(-2)}{3(7)}$$

$$f(-5) = -\frac{2}{7}$$



(235) $f(x) = \sqrt{x-1} + 2$

$f(1)$

$f(1) = \sqrt{1-1} + 2$

$f(1) = \sqrt{0} + 2$

$f(1) = 0 + 2$

$f(1) = 2$



(236) $f(x) = \sqrt{x-1} + 2$

$f(2)$

$f(2) = \sqrt{2-1} + 2$

$f(2) = \sqrt{1} + 2$

$f(2) = 1 + 2$

$f(2) = 3$

(237) $f(x) = \sqrt{x-1} + 2$

$f(5)$

$f(5) = \sqrt{5-1} + 2$

$f(5) = \sqrt{4} + 2$

$f(5) = 2 + 2$

$f(5) = 4$

(238) $f(x) = \sqrt{x+1} + 2$

$f(-1)$

$f(-1) = \sqrt{-1+1} + 2$

$f(-1) = \sqrt{0} + 2$

$f(-1) = 0 + 2$

$f(-1) = 2$

$$(239) \quad f(x) = \sqrt{x+1} + 2$$

$$f(0)$$

$$f(0) = \sqrt{0+1} + 2$$

$$f(0) = \sqrt{1} + 2$$

$$f(0) = 1 + 2$$

$$f(0) = 3$$



$$(240) \quad f(x) = \sqrt{x+1} + 2$$

$$f(3)$$

$$f(3) = \sqrt{3+1} + 2$$

$$f(3) = \sqrt{4} + 2$$

$$f(3) = 2 + 2$$

$$f(3) = 4$$

$$(241) \quad f(x) = \frac{1}{x} \quad f(0) =$$

$$f(0) = \frac{1}{0}$$

$$f(0) = \text{undefined}$$

$$(242) \quad f(x) = \frac{1}{x} \quad f\left(\frac{1}{3}\right)$$

$$f\left(\frac{1}{3}\right) = \frac{1}{\frac{1}{3}}$$

$$f\left(\frac{1}{3}\right) = \frac{1}{\frac{1}{3}}$$

$$f\left(\frac{1}{3}\right) = \frac{1}{\frac{1}{3}} = \frac{3}{1}$$

$$f\left(\frac{1}{3}\right) = \frac{3}{1}$$

$$f\left(\frac{1}{3}\right) = 3$$

$$(243) \quad f(x) = \frac{1}{x} + \frac{4}{x} \quad f\left(\frac{1}{2}\right)$$

$$f\left(\frac{1}{2}\right) = \frac{1}{\frac{1}{2}} + \frac{4}{\frac{1}{2}}$$

$$f\left(\frac{1}{2}\right) = \frac{1}{\frac{1}{2}} + \frac{4}{\frac{1}{2}}$$

$$f\left(\frac{1}{2}\right) = \frac{1}{1} \cdot \frac{2}{1} + \frac{4}{1} \cdot \frac{2}{1}$$

$$f\left(\frac{1}{2}\right) = \frac{2}{1} + \frac{8}{1}$$

$$f\left(\frac{1}{2}\right) = 2 + 8$$

$$f\left(\frac{1}{2}\right) = 10$$

$$(244) \quad f(x) = \frac{1}{x} + \frac{4}{x}$$

$$f\left(\frac{1}{4}\right) = \frac{1}{\frac{1}{4}} + \frac{4}{\frac{1}{4}}$$

$$f\left(\frac{1}{4}\right) = \frac{1}{\frac{1}{4}} + \frac{4}{\frac{1}{4}}$$

$$f\left(\frac{1}{4}\right) = \frac{1}{1} \cdot \frac{4}{1} + \frac{4}{1} \cdot \frac{4}{1}$$

$$f\left(\frac{1}{4}\right) = \frac{4}{1} + \frac{16}{1}$$

$$f\left(\frac{1}{4}\right) = 4 + 16$$

$$f\left(\frac{1}{4}\right) = 20$$



$$(245) \quad f(x) = \frac{4}{x} + \frac{5}{x}$$

$$f\left(\frac{1}{3}\right)$$

$$f\left(\frac{1}{3}\right) = \frac{4}{\frac{1}{3}} + \frac{5}{\frac{1}{3}}$$

$$f\left(\frac{1}{3}\right) = \frac{4}{\frac{1}{3}} + \frac{5}{\frac{1}{3}}$$

$$f\left(\frac{1}{3}\right) = \frac{4 \cdot 3}{1} + \frac{5 \cdot 3}{1}$$

$$f\left(\frac{1}{3}\right) = \frac{12}{1} + \frac{15}{1}$$

$$f\left(\frac{1}{3}\right) = 12 + 15$$

$$f\left(\frac{1}{3}\right) = 27$$

$$(246) \quad f(x) = \frac{4}{x} - \frac{5}{x}$$

$$f\left(\frac{1}{3}\right)$$

$$f\left(\frac{1}{3}\right) = \frac{4}{\frac{1}{3}} - \frac{5}{\frac{1}{3}}$$

$$f\left(\frac{1}{3}\right) = \frac{4}{\frac{1}{3}} - \frac{5}{\frac{1}{3}}$$

$$f\left(\frac{1}{3}\right) = \frac{4 \cdot 3}{1} - \frac{5 \cdot 3}{1}$$

$$f\left(\frac{1}{3}\right) = \frac{12}{1} - \frac{15}{1}$$

$$f\left(\frac{1}{3}\right) = 12 - 15$$

$$f\left(\frac{1}{3}\right) = -3$$



$$(247) \quad f(x) = x^{-2} \quad f(2)$$

$$f(2) = (2)^{-2}$$

$$f(2) = \frac{1}{2^2}$$

$$f(2) = \frac{1}{2 \cdot 2}$$

$$f(2) = \frac{1}{4}$$



$$(248) \quad f(x) = x^{-2} \quad f(3)$$

$$f(3) = (3)^{-2}$$

$$f(3) = \frac{1}{3^2}$$

$$f(3) = \frac{1}{3 \cdot 3}$$

$$f(3) = \frac{1}{9}$$

$$(249) \quad f(x) = x^{-2} \quad f(4)$$

$$f(4) = (4)^{-2}$$

$$f(4) = \frac{1}{4^2}$$

$$f(4) = \frac{1}{4 \cdot 4}$$

$$f(4) = \frac{1}{16}$$

$$(250)$$

$$f(x) = |x-1|$$

$$f(-1) = |-1-1|$$

$$f(-1) = |-2|$$

Find $f(-1)$

$$f(-1) = 2$$

$$\begin{aligned} \textcircled{251} \quad f(x) &= |x-1| & f(0) \\ f(0) &= |0-1| \\ f(0) &= |-1| \\ f(0) &= 1 \end{aligned}$$

$$\begin{aligned} \textcircled{252} \quad f(x) &= |x-1| & f(1) \\ f(1) &= |1-1| \\ f(1) &= |0| \\ f(1) &= 0 \end{aligned}$$

$$\begin{aligned} \textcircled{253} \quad f(x) &= |2x-5| & f(-2) \\ f(-2) &= |2(-2)-5| \\ f(-2) &= |-4-5| \\ f(-2) &= |-9| \\ f(-2) &= 9 \end{aligned}$$

$$\begin{aligned} \textcircled{254} \quad f(x) &= |x-1|+4 & f(-1) \\ f(-1) &= |-1-1|+4 \\ f(-1) &= |-2|+4 \\ f(-1) &= 2+4 \\ f(-1) &= 6 \end{aligned}$$



$$(255) \quad f(x) = |x-1| + 4$$

$$f(0)$$

$$f(0) = |0-1| + 4$$

$$f(0) = |-1| + 4$$

$$f(0) = 1 + 4$$

$$f(0) = 5$$



$$(256) \quad f(x) = |x-1| + 4$$

$$f(1)$$

$$f(1) = |1-1| + 4$$

$$f(1) = |0| + 4$$

$$f(1) = 0 + 4$$

$$f(1) = 4$$

$$(257) \quad f(x) = 1000 - x^2$$

$$f(0)$$

$$f(0) = 1000 - (0)^2$$

$$f(0) = 1000 - (0)(0)$$

$$f(0) = 1000 - 0$$

$$f(0) = 1000$$

$$(258) \quad f(x) = 1000 - x^2$$

$$f(1)$$

$$f(1) = 1000 - (1)^2$$

$$f(1) = 1000 - (1)(1)$$

$$f(1) = 1000 - 1$$

$$f(1) = 999$$

(259) $f(x) = 1000 - x^2$ $f(31)$

$$f(31) = 1000 - (31)^2$$

$$f(31) = 1000 - (31)(31)$$

$$f(31) = 1000 - 961$$

$$f(31) = 39$$



(260) $f(x) = 10,000 - x^2$ $f(30)$

$$f(30) = 10,000 - (30)^2$$

$$f(30) = 10,000 - (30)(30)$$

$$f(30) = 10,000 - 900$$

$$f(30) = 9100$$

(261) $f(x) = 10,000 - 2x$ $f(30)$

$$f(30) = 10,000 - 2(30)$$

$$f(30) = 10,000 - 60$$

$$f(30) = 9940$$

(262) $f(x) = 50x + 300$ $f(3)$

$$f(3) = 50(3) + 300$$

$$f(3) = 150 + 300$$

$$f(3) = 450$$

(263) $f(x) = 50x + 300$

$f(12)$

$$f(12) = 50(12) + 300$$

$$f(12) = 600 + 300$$

$$f(12) = 900$$



(264) $f(x) = 2,000x + 4,000$

$f(12)$

$$f(12) = 2,000(12) + 4,000$$

$$f(12) = 24,000 + 4,000$$

$$f(12) = 28,000$$

(265) $f(x) = 2000x + 4000$

$f(3)$

$$f(3) = 2000(3) + 4000$$

$$f(3) = 6,000 + 4,000$$

$$f(3) = 10,000$$

(266) $f(x) = 500x + 100$

$f(5)$

$$f(5) = 500(5) + 100$$

$$f(5) = 2,500 + 100$$

$$f(5) = 2,600$$

(267) $f(x) = 500x + 100$

$f(20)$

$$f(20) = 500(20) + 100$$

$$f(20) = 10,000 + 100$$

$$f(20) = 10,100$$

268

$$f(x) = -2x + 8$$

$$f(1)$$

$$f(1) = -2(1) + 8$$

$$f(1) = -2 + 8$$

$$f(1) = 6$$



269

$$f(x) = -2x + 10$$

$$f(2)$$

$$f(2) = -2(2) + 10$$

$$f(2) = -4 + 10$$

$$f(2) = 6$$

270

$$f(x) = .10x^2$$

$$f(20)$$

$$f(20) = .10(20)^2$$

$$f(20) = .10(20)(20)$$

$$f(20) = .10(400)$$

$$f(20) = 40$$

271

$$f(x) = .10x^2$$

$$f(30)$$

$$f(30) = .10(30)^2$$

$$f(30) = .10(30)(30)$$

$$f(30) = .10(900)$$

$$f(30) = 90$$

$$(272) \quad f(x) = .10x^2 \quad f(60)$$

$$f(60) = .10(60)^2$$

$$f(60) = .10(60)(60)$$

$$f(60) = .10(3600)$$

$$f(60) = 360$$



$$(273) \quad f(x) = 4.9x^2 \quad f(5)$$

$$f(5) = 4.9(5)^2$$

$$f(5) = 4.9(5)(5)$$

$$f(5) = 4.9(25)$$

$$f(5) = 122.50$$

$$(274) \quad f(x) = 4.9x^2 \quad f(10)$$

$$f(10) = 4.9(10)^2$$

$$f(10) = 4.9(10)(10)$$

$$f(10) = 4.9(100)$$

$$f(10) = 490$$

$$(275) \quad f(x) = 4.9x^2 \quad f(20)$$

$$f(20) = 4.9(20)^2$$

$$f(20) = 4.9(20)(20)$$

$$f(20) = 4.9(400)$$

$$f(20) = 1960$$

$$(276) \quad f(x) = \sqrt{\frac{x}{.10}} \quad f(40)$$

$$f(40) = \sqrt{\frac{40}{.10}}$$

$$f(40) = \sqrt{400}$$

$$f(40) = 20$$

$$(277) \quad f(x) = \sqrt{\frac{x}{.10}} \quad f(90)$$

$$f(90) = \sqrt{\frac{90}{.10}}$$

$$f(90) = \sqrt{900}$$

$$f(90) = 30$$

$$(278) \quad f(x) = \sqrt{\frac{x}{.10}}$$

$$f(360) = \sqrt{\frac{360}{.10}}$$

$$f(360) = \sqrt{3600}$$

$$f(360) = 60$$

$$(279) \quad f(x) = 1000 (1.05)^x \quad f(2)$$

$$f(2) = 1000 (1.05)^2$$

$$f(2) = 1000 (1.05)(1.05)$$

$$f(2) = 1000 (1.1025)$$

$$f(2) = 1102.50$$



(280) $f(x) = 1000 (1.04)^x$ $f(2)$

$$f(2) = 1000 (1.04)^2$$

$$f(2) = 1000 (1.04)(1.04)$$

$$f(2) = 1000 (1.0816)$$

$$f(2) = 1081.60$$



(281)



$6a-b$

$$A = LW$$

Area

$$A = (6a-b)(6a-b)$$

$$A = 36a^2 - 6ab - 6ab + b^2$$

$$A = 36a^2 - 12ab + b^2$$

(282)



$8a-b$

$$A = LW$$

Area

$$A = (8a-b)(8a-b)$$

$$A = 64a^2 - 8ab - 8ab + b^2$$

$$A = 64a^2 - 16ab + b^2$$

(283)



$6x-y$

$$A = LW$$

Area

$$A = (6x-y)(6x-y)$$

$$A = 36x^2 - 6xy - 6xy + y^2$$

$$A = 36x^2 - 12xy + y^2$$

(284)



$4x-5$

$x+3$

$$A = LW$$

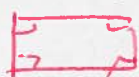
Area

$$A = (4x-5)(x+3)$$

$$A = 4x^2 + 12x - 5x - 15$$

$$A = 4x^2 + 7x - 15$$

(285)



$5x+3y$

$5x-3y$

$$A = LW$$

area

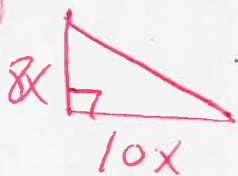
$$A = (5x+3y)(5x-3y)$$

$$A = 25x^2 - 15xy + 15xy - 9y^2$$

$$A = 25x^2 - 9y^2$$



(286)



$10x$

$$A = \frac{1}{2}BH$$

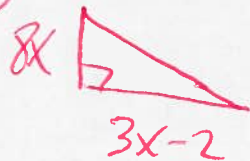
area triangle

$$A = \frac{1}{2}(10x)(8x)$$

$$A = \frac{1}{2}(80x^2)$$

$$A = 40x^2$$

(287)



$3x-2$

$$A = \frac{1}{2}BH$$

area triangle

$$A = \frac{1}{2}(3x-2)(8x)$$

$$A = \frac{1}{2}(24x^2 - 16x)$$

$$A = \frac{1}{2}(24x^2) - \frac{1}{2}(16x)$$

$$A = 12x^2 - 8x$$

(288)



$8\sqrt{5}$

$$A = \frac{1}{2}BH$$

area triangle

$$A = \frac{1}{2}(8\sqrt{5})(6\sqrt{5})$$

$$A = \frac{1}{2}(8)(6)(\sqrt{5})(\sqrt{5}) \quad \text{rewrite}$$

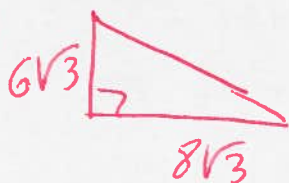
$$A = \frac{1}{2}(48)(\sqrt{5})^2$$

$$A = \frac{1}{2}(48)(5)$$

$$A = \frac{1}{2}(240)$$

$$A = 120$$

289.



$$A = \frac{1}{2} BH$$

Area triangle

$$A = \frac{1}{2} (8\sqrt{3})(6\sqrt{3})$$

$$A = \frac{1}{2} (8)(6)(\sqrt{3})(\sqrt{3}) \text{ rewrite}$$

$$A = \frac{1}{2} (48)(\sqrt{3})^2$$

$$A = \frac{1}{2} (48)(3)$$

$$A = \frac{1}{2} (144)$$

$$A = 72$$



290



$$A = \frac{1}{2} BH$$

Area triangle

$$A = \frac{1}{2} (4\sqrt{2})(3\sqrt{2})$$

$$A = \frac{1}{2} (4)(3)(\sqrt{2})(\sqrt{2}) \text{ rewrite}$$

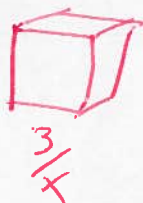
$$A = \frac{1}{2} (12)(\sqrt{2})^2$$

$$A = \frac{1}{2} (12)(2)$$

$$A = \frac{1}{2} (24)$$

$$A = 12$$

291



Volume of cube

$$V = LWH$$

$$V = \left(\frac{3}{x}\right)\left(\frac{3}{x}\right)\left(\frac{3}{x}\right)$$

$$V = \frac{27}{x^3}$$

292



3x

Find the length of the side of a square if the area is 144.

12

$$A = LW$$

$$144 = (3x)(3x)$$

$$144 = 9x^2$$

$$\frac{144}{9} = \frac{9x^2}{9}$$

$$16 = x^2$$

$$\pm \sqrt{16} = \sqrt{x^2}$$

$$4 = x$$

$$x = 4$$

sub f

$$3x =$$

$$3(4) =$$

$$12 = \text{length side}$$

293.

$$\text{If } a^2 + N + 8b^2 = (a+b)(a+8b)$$

$$N =$$

$$a^2 + N + 8b^2 = a^2 + 8ab + ab + 8b^2$$

$$= a^2 + 9ab + 8b^2$$

$$N = 9ab$$

294

$$8x - 12 =$$

Factor GCF

$$4(2x - 3) =$$

295

$$x^2 + x =$$

Factor GCF

$$x(x+1) =$$

(296) $4x^2 - 14x =$ Factor GCF

$2x(2x-7) =$

(297) $8x^3y^2 - 4xy^3 =$ Factor GCF

$4x^1y^2(2x^2 - y) =$



(298) $6x^3y^2z^7 - 15xy^4z^2 =$ Factor GCF

$3xy^2z^2(2x^2z^5 - 5y^2) =$

(299) $x(x-1) + 3(x-1) =$ Factor GCF

$(x-1)(x+3) =$

(300) $2x(x+5) - 7(x+5) =$ Factor GCF

$(x+5)(2x-7) =$

(301) $5x(a+b) - 2(a+b) =$ Factor GCF

$(a+b)(5x-2) =$

(302) $5x(x+y) - 3(x+y) =$ Factor GCF

$(x+y)(5x-3) =$

(303) $5x(x-y) + 2(y-x) =$ Factor GCF

$5x(x-y) - 2(x-y) =$ Rewrite

$(x-y)(5x-2) =$

304 $-16x^2 + 64x =$ Factor GCF

$-16x(x - 4) =$



305 $x^2 - 25 =$

$(x)^2 - (5)^2 =$

$(x+5)(x-5) =$

$a^2 - b^2 = (a+b)(a-b)$ Factor

306 $x^2 - 9 =$

$(x)^2 - (3)^2 =$

$(x+3)(x-3) =$

$a^2 - b^2 = (a+b)(a-b)$ Factor

307 $x^2 - 16 =$

$(x)^2 - (4)^2 =$

$(x+4)(x-4) =$

$a^2 - b^2 = (a+b)(a-b)$ Factor

308 $x^2 - 9y^2 =$

$(x)^2 - (3y)^2 =$

$(x+3y)(x-3y) =$

$a^2 - b^2 = (a+b)(a-b)$ Factor

309 $4x^2 - 25y^2 =$

$(2x)^2 - (5y)^2 =$

$(2x+5y)(2x-5y) =$

$a^2 - b^2 = (a+b)(a-b)$ Factor

3/10 $64x^2 - 9y^2 =$ $a^2 - b^2 = (a+b)(a-b)$
 $(8x)^2 - (3y)^2 =$
 $(8x+3y)(8x-3y) =$ factor



3/11 $\frac{25}{64}x^2 - \frac{9}{121} =$ $a^2 - b^2 = (a+b)(a-b)$
 $(\frac{5x}{8})^2 - (\frac{3}{11})^2 =$ factor
 $(\frac{5x}{8} + \frac{3}{11})(\frac{5x}{8} - \frac{3}{11}) =$

3/12 $\frac{25}{64}x^2 - 9 =$ $a^2 - b^2 = (a+b)(a-b)$
 $(\frac{5x}{8})^2 - (3)^2 =$
 $(\frac{5x}{8} + 3)(\frac{5x}{8} - 3) =$ factor

3/13 $x^2 - 3x - 4 =$ Factor $\begin{pmatrix} 4.1 \\ 2.2 \end{pmatrix}$
 $(x+1)(x-4) =$

3/14 $x^2 - 2x - 8 =$ Factor $\begin{pmatrix} 8.1 \\ 2.4 \end{pmatrix}$
 $(x+2)(x-4) =$

3/15 $x^2 + 2x - 8 =$ Factor $\begin{pmatrix} 8.1 \\ 2.4 \end{pmatrix}$
 $(x-2)(x+4) =$

3/16 $x^2 - 6x + 8 =$ Factor $\begin{pmatrix} 8.1 \\ 2.4 \end{pmatrix}$
 $(x-2)(x-4) =$

317 $x^2 + 6x + 8 =$ Factor

$(x+2)(x+4) =$

318 $x^2 + 4x - 12 =$ Factor

$(x-2)(x+6) =$

319 $x^2 + 3x - 4 =$ Factor

$(x-1)(x+4) =$

320 $2x^2 + 9x - 18 =$ Factor

$(2x-3)(x+6) =$

321 $6x^2 - 7x - 20 =$ Factor

$(2x-5)(3x+4) =$

322 $3x^2 - 5x + 2 =$ Factor

$(3x-2)(x-1) =$

323 $2x^2 - 9x + 7 =$ Factor

$(2x-7)(x-1) =$

324 $64A^2 - 16AB + B^2 =$ Factor

$(8A-B)(8A-B) =$

325 $36x^2 - 12xy + y^2 =$

$(6x-y)(6x-y) =$

8.1
2.4

12.1
6.2
3.4

4.1
2.2

18.1
2.9
3.6

6.1
2.3

20.1
10.2
4.5

3.1

2.1

2.1

7.1

64.1
32.2
16.4
8.8

36.1
18.2
4.9
12.3
6.6



326 $A^2 + 6AB + 5B^2 =$

$(A+B)(A+5B) =$

Factor

327 $4x^2 - 12xy + 9y^2 =$

$(2x-3y)(2x-3y) =$

Factor

328 $16x^2 - 24x + 9 =$

$(4x-3)(4x-3) =$

Factor

329 $6A^2 - 3A - 18 =$

$3(2A^2 - A - 6) =$

$3(2A+3)(A-2) =$

Factor

GCF

330 $2x^2 - 32y^2 =$

$2(x^2 - 16y^2) =$

$2((x)^2 - (4y)^2) =$

$2(x+4y)(x-4y) =$

Factor

GCF

331 $2x^3 - 10x^2 + 12x =$

$2x(x^2 - 5x + 6) =$

$2x(x-2)(x-3) =$

Factor

GCF

332 $x^4 - 16 =$

$(x^2)^2 - (4)^2 =$

$(x^2+4)(x^2-4) =$

$(x^2+4)((x)^2 - (2)^2) =$

$(x^2+4)(x+2)(x-2) =$

Factor

$a^2 - b^2 = (a+b)(a-b)$

4.1
2.2
9.1
3.3



16.1
8.2
9.1
3.3

6.1
2.3
18.1
9.2
6.3

16.1
4.4
2.8

6.1
2.3

16.1
8.2
4.4

333

$$x^4 - 1 =$$

$$(x^2)^2 - (1)^2 =$$

$$(x^2 + 1)(x^2 - 1) =$$

$$(x^2 + 1)((x)^2 - (1)^2) =$$

$$(x^2 + 1)(x + 1)(x - 1) =$$

$$a^2 - b^2 = (a + b)(a - b)$$

Factor

1.1



334

$$x^2 - 3x - 4 = 0$$

Solve

$$(x + 1)(x - 4) = 0$$

$$x + 1 = 0 \quad \text{OR} \quad x - 4 = 0$$

$$x + 1 - 1 = 0 - 1 \quad \text{OR} \quad x - 4 + 4 = 0 + 4$$

$$x = -1$$

$$\text{OR } x = 4$$

4.1

2.2

335

$$x^2 - 2x - 8 = 0$$

Solve

$$(x + 2)(x - 4) = 0$$

$$x + 2 = 0 \quad \text{OR} \quad x - 4 = 0$$

$$x + 2 - 2 = 0 - 2 \quad \text{OR} \quad x - 4 + 4 = 0 + 4$$

$$x = -2$$

$$\text{OR } x = 4$$

8.1

2.4

336

$$x^2 + 2x - 8 = 0$$

Solve

$$(x - 2)(x + 4) = 0$$

$$x - 2 = 0 \quad \text{OR} \quad x + 4 = 0$$

$$x - 2 + 2 = 0 + 2 \quad \text{OR} \quad x + 4 - 4 = 0 - 4$$

$$x = 2$$

$$\text{OR } x = -4$$

8.1

2.4

337 $x^2 + 6x + 8 = 0$ Solve

8.1
2.8

$$(x+2)(x+4) = 0$$

$$x+2=0 \text{ OR } x+4=0$$

$$x+2-2=0-2 \text{ OR } x+4-4=0-4$$

$$x=-2 \text{ OR } x=-4$$

7.9

338 $x^2 + 4x - 12 = 0$ Solve

$$(x-2)(x+6) = 0$$

$$x-2=0 \text{ OR } x+6=0$$

$$x-2+2=0+2 \text{ OR } x+6-6=0-6$$

$$x=2 \text{ OR } x=-6$$

12.1
6.2
3.4

339 $x^2 + 3x = 4$ Solve

$$x^2 + 3x - 4 = 4 - 4$$

$$x^2 + 3x - 4 = 0$$

$$(x-1)(x+4) = 0$$

$$x-1=0 \text{ OR } x+4=0$$

$$x-1+1=0+1 \text{ OR } x+4-4=0-4$$

$$x=1 \text{ OR } x=-4$$

340 $x^2 - 12 = -4x$ Solve

$$x^2 - 12 + 4x = -4x + 4x$$

$$x^2 + 4x - 12 = 0 \text{ rewrite}$$

$$(x-2)(x+6) = 0$$

$$x-2=0 \text{ OR } x+6=0$$

$$x-2+2=0+2 \text{ OR } x+6-6=0-6$$

$$x=2 \text{ OR } x=-6$$

12.1
6.2
3.4

$$(341) \quad x^2 - 9 = 0$$

$$(x)^2 - (3)^2 = 0$$

$$(x+3)(x-3) = 0$$

$$x+3=0 \quad \text{OR} \quad x-3=0$$

$$x+3-3=0-3 \quad \text{OR} \quad x-3+3=0+3$$

$$x = -3 \quad \text{OR} \quad x = 3$$

$$a^2 - b^2 = (a+b)(a-b)$$

9.1
3.3



$$(342) \quad x^2 - 25 = 0$$

$$(x)^2 - (5)^2 = 0$$

$$(x+5)(x-5) = 0$$

$$x+5=0 \quad \text{OR} \quad x-5=0$$

$$x+5-5=0-5 \quad \text{OR} \quad x-5+5=0+5$$

$$x = -5 \quad \text{OR} \quad x = 5$$

$$a^2 - b^2 = (a+b)(a-b)$$

25.1
5.5

$$(343) \quad 4x^2 - 25 = 0$$

$$(2x)^2 - (5)^2 = 0$$

$$(2x+5)(2x-5) = 0$$

$$2x+5=0 \quad \text{OR} \quad 2x-5=0$$

$$2x+5-5=0-5 \quad \text{OR} \quad 2x-5+5=0+5$$

$$2x = -5 \quad \text{OR} \quad 2x = 5$$

$$\frac{2x}{2} = \frac{-5}{2} \quad \text{OR} \quad \frac{2x}{2} = \frac{5}{2}$$

$$x = -\frac{5}{2} \quad \text{OR} \quad x = \frac{5}{2}$$

$$a^2 - b^2 = (a+b)(a-b)$$

2.2
25.1
5.5

344 $25x^2 = 64$

$$25x^2 - 64 = 0$$

$$(5x)^2 - 8^2 = 0$$

$$(5x+8)(5x-8) = 0$$

$$5x+8=0 \quad \text{OR} \quad 5x-8=0$$

$$5x+8-8=0-8 \quad \text{OR} \quad 5x-8+8=0+8$$

$$5x = -8 \quad \text{OR} \quad 5x = 8$$

$$\frac{5x}{5} = \frac{-8}{5} \quad \text{OR} \quad \frac{5x}{5} = \frac{8}{5}$$

$$x = -\frac{8}{5} \quad \text{OR} \quad x = \frac{8}{5}$$

$$a^2 - b^2 = (a+b)(a-b)$$

81

25.1
5.5

64.1
32.2
16.4
8.8

345. $x^2 = 16$

$$x^2 - 16 = 0$$

$$(x)^2 - (4)^2 = 0$$

$$(x+4)(x-4) = 0$$

$$x+4=0 \quad \text{OR} \quad x-4=0$$

$$x+4-4=0-4 \quad \text{OR} \quad x-4+4=0+4$$

$$x = -4 \quad \text{OR} \quad x = 4$$

$$a^2 - b^2 = (a+b)(a-b)$$

16.1
4.4
2.8

346 $x^2 = 5$

$$\sqrt{x^2} = \pm\sqrt{5}$$

$$x = \pm\sqrt{5}$$

$$x = -\sqrt{5} \quad \text{OR} \quad x = \sqrt{5}$$

(347) $\frac{4}{x} = \frac{x}{9}$ Solve

$4(9) = x(x)$ cross multiply

$36 = x^2$

$\pm\sqrt{36} = \sqrt{x^2}$

$\pm 6 = x$

$x = -6$ or $x = 6$

(348) $\frac{1}{x} = \frac{x}{5}$ Solve

$1(5) = x(x)$ cross multiply

$5 = x^2$

$\pm\sqrt{5} = \sqrt{x^2}$

$\pm\sqrt{5} = x$

$x = -\sqrt{5}$ or $x = \sqrt{5}$

(349) $(x-1)^2 + 1 = 5$

$(x-1)^2 + 1 - 1 = 5 - 1$

$(x-1)^2 = 4$

$\sqrt{(x-1)^2} = \pm\sqrt{4}$

$x-1 = \pm 2$

$x-1 = -2$ or $x-1 = 2$

$x-1+1 = -2+1$ or $x-1+1 = 2+1$

$x = -1$

or

$x = 3$



$$\textcircled{350} \quad (x-2)^2 + 2 = 9$$

$$(x-2)^2 + \cancel{x-2} = 9-2$$

$$(x-2)^2 = 7$$

Solve



$$\sqrt{(x-2)^2} = \pm\sqrt{7}$$

$$x-2 = \pm\sqrt{7}$$

$$\cancel{x-2} + \cancel{x} = \cancel{2} \pm \sqrt{7}$$

$$x = 2 \pm \sqrt{7}$$

OR

$$x = 2 - \sqrt{7}$$

OR

$$x = 2 + \sqrt{7}$$

$$\textcircled{351} \quad (x-1)^2 + 1 = 2$$

$$(x-1)^2 + \cancel{1} = 2-1$$

$$(x-1)^2 = 1$$

Solve

$$\sqrt{(x-1)^2} = \pm\sqrt{1}$$

$$x-1 = \pm 1$$

$$x-1 = -1 \quad \text{OR} \quad x-1 = 1$$

$$x-1+1 = -1+1 \quad \text{OR} \quad x-1+1 = 1+1$$

$$x = 0$$

OR

$$x = 2$$

$$\textcircled{352} \quad 4^2 = 2^k \quad \text{Solve}$$

$$(4)(4) = 2^k$$

$$16 = 2^k$$

$$\cancel{2^4} = \cancel{2}^k \quad \text{rewrite}$$

$$4 = k$$

$$\begin{array}{r} 2 \overline{) 16} \\ 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \overline{) 2} \\ 2 \overline{) 1} \end{array}$$

Primes
2, 3, 5, 7, 11, 13, ...

353 If $f(x) = -16x^2 + 64x$

Set $-16x^2 + 64x = 0$

$-16x(x-4) = 0$

$-16x = 0$ OR $x-4 = 0$

$\frac{-16x}{-16} = \frac{0}{-16}$ OR $x-4+4 = 0+4$

$x = 0$ OR $x = 4$

find $f(x) = 0$

84

354. $x-1$ is a factor of

✓ (I) $x^2 - 1 =$
 $(x+1)(x-1) =$ Yes

(II) $x^2 + x =$
 $x(x+1) =$ No

✓ (III) $x^2 + 3x - 4 =$
 $(x-1)(x+4) =$
 Yes

✓ (IV) $2x^2 - 9x + 7 =$
 $(2x-7)(x-1) =$
 Yes

355. $\frac{ax+b}{2a+1} = b$

$\left(\frac{ax+b}{2a+1}\right)(2a+1) = b(2a+1)$

$ax + b = 2ab + b$

$ax + \cancel{b} - \cancel{b} = 2ab + \cancel{b} - \cancel{b}$

$ax = 2ab$

$\frac{ax}{a} = \frac{2ab}{a}$

$x = 2b$

$x =$

$$(356) \quad (x-1)^2 = 25$$

$$\sqrt{(x-1)^2} = \pm\sqrt{25}$$

Square root both sides

$$x-1 = \pm 5$$

$$x-1 = -5 \quad \text{OR}$$

$$x-1 = 5$$

$$x-1+1 = -5+1 \quad \text{OR} \quad x-1+1 = 5+1$$

$$x = -4$$

$$\text{OR} \quad x = 6$$



$$(357) \quad \sqrt{x-1} = 5$$

$$(\sqrt{x-1})^2 = (5)^2$$

$$x-1 = (5)(5)$$

$$x-1 = 25$$

$$x-1+1 = 25+1$$

$$x = 26$$

Square both sides

$$\text{ck } \sqrt{x-1} = 5 \quad ?$$

$$\sqrt{26-1} = 5 \quad ?$$

$$\sqrt{25} = 5 \quad ?$$

$$5 = 5 \quad \checkmark \checkmark \checkmark$$

$$(358) \quad \sqrt{x+1} = 4$$

$$(\sqrt{x+1})^2 = (4)^2$$

$$x+1 = (4)(4)$$

$$x+1 = 16$$

$$x+1-1 = 16-1$$

$$x = 15$$

Square both sides

$$\text{ck } \sqrt{x+1}$$

$$\sqrt{x+1} = 4 \quad ?$$

$$\sqrt{15+1} = 4 \quad ?$$

$$\sqrt{16} = 4 \quad ?$$

$$4 = 4 \quad \checkmark \checkmark \checkmark$$

$$\begin{aligned}
 (359) \quad & \sqrt{2-x} = 4 \\
 & (\sqrt{2-x})^2 = (4)^2 \\
 & 2-x = (4)(4) \\
 & 2-x = 16 \\
 & 2-x-2 = 16-2 \\
 & -x = 14 \\
 & \frac{-x}{-1} = \frac{14}{-1}
 \end{aligned}$$

$$x = -14$$

$$\begin{aligned}
 (360) \quad & 2(x^2 - 5) = 62 \\
 & \frac{2(x^2 - 5)}{2} = \frac{62}{2} \\
 & x^2 - 5 = 31 \\
 & x^2 - 5 + 5 = 31 + 5 \\
 & x^2 = 36
 \end{aligned}$$

$$\sqrt{x^2} = \pm \sqrt{36}$$

$$x = \pm 6$$

$$x = -6 \quad \text{OR} \quad x = 6$$

ck

$$\begin{aligned}
 & \sqrt{2-x} = 4 \quad ? \\
 & \sqrt{2-(-14)} = 4 \quad ? \\
 & \sqrt{2+14} = 4 \quad ? \\
 & \sqrt{16} = 4 \quad ? \\
 & 4 = 4 \quad \checkmark \checkmark \checkmark
 \end{aligned}$$

(361) Find Max

$$f(x) = 80 - 16x^2 + 64x$$

$$f(x) = -16x^2 + 64x + 80$$

$$a = -16 \quad b = 64 \quad , \quad c = 80$$

$$\text{Max} = \text{Vertex} = \left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right) \right)$$

$$= \left(-\frac{(64)}{2(-16)}, f\left(-\frac{(64)}{2(-16)}\right) \right)$$

$$= \left(\frac{-64}{-32}, f\left(\frac{-64}{-32}\right) \right)$$

$$= (2, f(2))$$

$$= (2, -16(2)^2 + 64(2) + 80)$$

$$= (2, -16(2)(2) + 64(2) + 80)$$

$$= (2, -16(4) + 64(2) + 80)$$

$$= (2, -64 + 128 + 80)$$

$$= (2, 144)$$

↑ Max

rewrite.

87

362 Find max

$$f(x) = -2x^2 + 4x + 6$$

$a = -2 \quad b = 4 \quad c = 6$

$$\begin{aligned} \text{max} = \text{vertex} &= \left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right) \\ &= \left(-\frac{(4)}{2(-2)}, f\left(-\frac{(4)}{2(-2)}\right)\right) \\ &= \left(-\frac{4}{-4}, f\left(-\frac{4}{-4}\right)\right) \\ &= (1, f(1)) \\ &= (1, -2(1)^2 + 4(1) + 6) \\ &= (1, -2(1)(1) + 4(1) + 6) \\ &= (1, -2(1) + 4(1) + 6) \\ &= (1, -2 + 4 + 6) \\ &= (1, 8) \end{aligned}$$

max



363

$$x - y = 0$$

$$x + y = 7$$

$$2x + 0 = 7$$

$$2x = 7$$

$$\frac{2x}{2} = \frac{7}{2}$$

$$x =$$

$$x = \frac{7}{2}$$

364

$$\begin{aligned} X - y &= 6 \\ X &= 2y \end{aligned}$$

Solve

$$y =$$

$$(2y) - y = 6 \quad \text{Subs } x$$

$$2y - y = 6$$

$$y = 6$$

365

$$X + 2y = 5$$

$$X = y$$

Substitute

Solve

$$y =$$

$$(y) + 2y = 5$$

$$y + 2y = 5$$

$$3y = 5$$

$$\frac{3y}{3} = \frac{5}{3}$$

$$y = \frac{5}{3}$$

366

$$X - 2y = 2$$

$$X - 2y = 8$$

Solve

$$\begin{cases} X - 2y = 2 & (-1) \\ X - 2y = 8 & (1) \end{cases}$$

$$-X + 2y = -2$$

$$X - 2y = 8$$

$$0 + 0 = 6$$

$$0 \neq 6$$

No
Solution



367

$$\begin{array}{r}
 x - 2y = 2 \\
 x + 2y = 6 \\
 \hline
 2x + 0 = 8 \\
 2x = 8 \\
 \frac{2x}{2} = \frac{8}{2}
 \end{array}$$

$$x = 4$$

Subs

Solve

$$\begin{array}{r}
 x - 2y = 2 \\
 (4) - 2y = 2 \\
 \cancel{4} - 2y - \cancel{4} = 2 - 4 \\
 -2y = -2 \\
 \frac{-2y}{-2} = \frac{-2}{-2}
 \end{array}$$

$$y = 1$$



368

$$\begin{array}{r}
 2x + 3y = 5 \\
 4x - 2y = 2
 \end{array}$$

Solve

$$x =$$

$$\begin{array}{r}
 (2x + 3y = 5) (2) \\
 (4x - 2y = 2) (3) \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4x + 6y = 10 \\
 12x - 6y = 6 \\
 \hline
 \end{array}$$

$$16x = 16$$

$$\frac{16x}{16} = \frac{16}{16}$$

$$x = 1$$

369

$$\begin{array}{r}
 3x + 2y = 5 \\
 5x + 3y = 8
 \end{array}$$

Solve x =

$$\begin{array}{r}
 (3x + 2y = 5) (-3) \\
 (5x + 3y = 8) (2) \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 -9x - 6y = -15 \\
 10x + 6y = 16 \\
 \hline
 \end{array}$$

$$x = 1$$

$$x = 1$$

370

$$x + 2y = 2$$

$$x + 2y = 6$$

$$\begin{pmatrix} x + 2y = 2 \\ x + 2y = 6 \end{pmatrix} \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$-x - 2y = -2$$

$$x + 2y = 6$$

$$0 \neq 4$$

No Solution

Solve



371

$2x + 4y = 16$ and $(x, y) = (2, y)$ then $y =$

$$2(2) + 4y = 16$$

$$4 + 4y = 16$$

$$4 + 4y - 4 = 16 - 4$$

$$4y = 12$$

$$\frac{4y}{4} = \frac{12}{4}$$

$$y = 3$$

372

$4x - 3y = 9$ and $(x, y) = (x, 5)$ then $x =$

$$4x - 3(5) = 9$$

$$4x - 15 = 9$$

$$4x - 15 + 15 = 9 + 15$$

$$4x = 24$$

$$\frac{4x}{4} = \frac{24}{4}$$

$$x = 6$$

373

$$(5x^2y^7)^3 =$$

Simplify

$$(5)^{1(3)} x^{2(3)} y^{7(3)} =$$

$$5^3 x^6 y^{21} =$$

$$(5)(5)(5) x^6 y^{21} =$$

$$125 x^6 y^{21} =$$



374

$$(-2x^3y^4)^4 =$$

Simplify

$$(-2)^{1(4)} x^{3(4)} y^{4(4)} =$$

$$(-2)^4 x^{12} y^{16} =$$

$$(-2)(-2)(-2)(-2) x^{12} y^{16} =$$

$$16 x^{12} y^{16} =$$

375

$$(-2x^2y^3)(4x^1y^4) =$$

Simplify

$$-8 x^{2+1} y^{3+4} =$$

$$-8 x^3 y^7 =$$

376

$$(-2x^3y^4)(-2x^1y^1) =$$

Simplify

$$4 x^{3+1} y^{4+1} =$$

$$4 x^4 y^5 =$$

$$\textcircled{377} \quad \frac{40x^3y^4}{15x^1y^8} =$$

Simplify

$$\frac{\cancel{5} \cdot 8 x^{3-1}}{\cancel{3} \cdot 5 y^{8-4}} =$$



$$\frac{8x^2}{3y^4} =$$

$$\textcircled{378} \quad \frac{-25x^4y^7z^{11}}{30x^6y^2z^{11}} =$$

Simplify

$$\frac{-5 \cdot 5 y^{7-2}}{6 \cdot 5 x^{6-4}} =$$

$$\frac{-5 \cancel{5}^5}{6 x^2} =$$

$$\textcircled{379} \quad \frac{x^2-4}{x^2-9} \cdot \frac{x+3}{x-2} =$$

Simplify

$$\frac{(x+2)(x-2)}{(x+3)(x-3)} \cdot \frac{(x+3)}{(x-2)} =$$

$$\frac{x+2}{x-3} =$$

$$(380) \frac{x^2 + 3x + 2}{x^2 - 9x + 20} \div \frac{x^2 - 4}{x^2 - 5x} =$$

Simplify

$$\frac{x^2 + 3x + 2}{x^2 - 9x + 20} \cdot \frac{x^2 - 5x}{x^2 - 4} =$$

$$\frac{(x+1)(x+2)}{(x-4)(x-5)} \cdot \frac{x(x-5)}{(x+2)(x-2)} =$$

$$\frac{x(x+1)}{(x-4)(x-2)} =$$

$$(381) \frac{x + x^2}{x} = \text{Simplify}$$

$$\frac{x}{x} + \frac{x^2}{x} =$$

$$1 + x =$$

$$(382) \frac{2xy + y}{y} = \text{Simplify}$$

$$\frac{2xy}{y} + \frac{y}{y} =$$

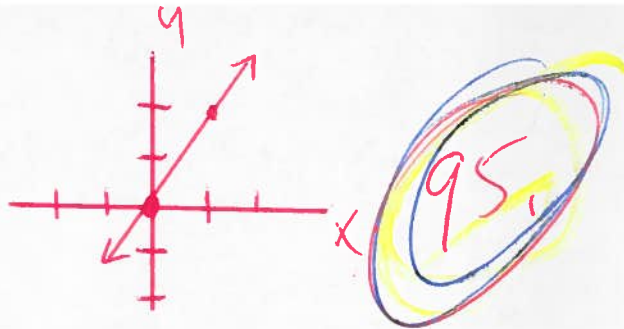
$$2x + 1 =$$

$$(383) \left(\frac{2x}{3y} \right) \left(\frac{27y}{8x^2} \right) = \begin{matrix} \nearrow \\ \downarrow \end{matrix} \left(\frac{1}{1} \right) \left(\frac{9}{4x} \right) = \frac{9}{4x}$$



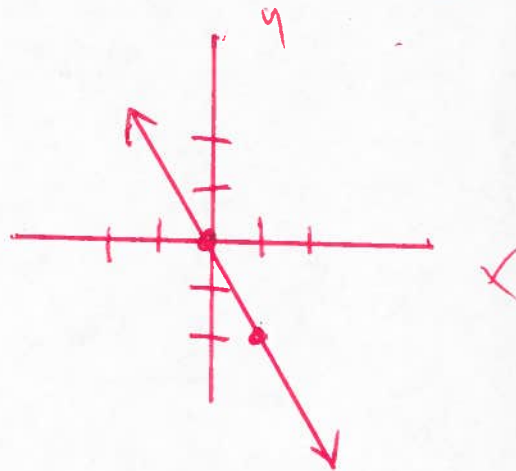
384 Graph $y = 2x$
 $y = 2(0)$
 $y = 0$
 $y = 2(1)$
 $y = 2$

x	y
0	0
1	2



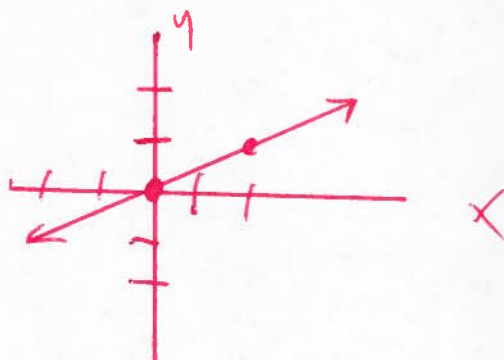
385 Graph $y = -2x$
 $y = -2(0)$
 $y = 0$
 $y = -2(1)$
 $y = -2$

x	y
0	0
1	-2



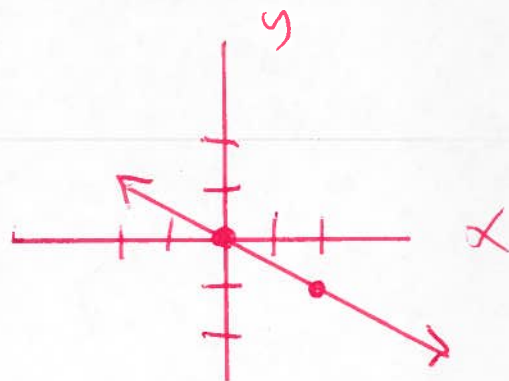
386 Graph $y = \frac{1}{2}x$
 $y = \frac{1}{2}(0)$
 $y = 0$
 $y = \frac{1}{2}(2)$
 $y = 1$

x	y
0	0
2	1



387 Graph $y = -\frac{1}{2}x$
 $y = -\frac{1}{2}(0)$
 $y = 0$
 $y = -\frac{1}{2}(2)$
 $y = -1$

x	y
0	0
2	-1



388 Graph $y = \frac{3}{2}x$

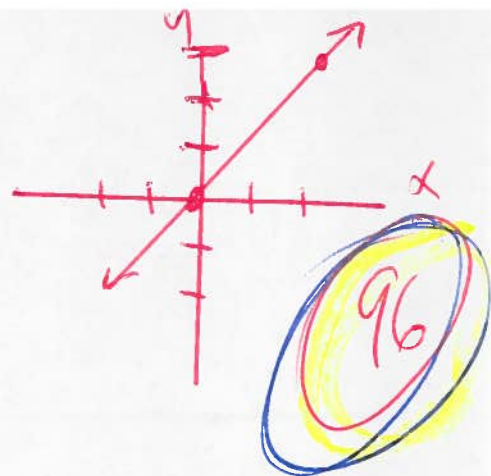
$$y = \frac{3}{2}(0)$$

$$y = 0$$

$$y = \frac{3}{2}(2)$$

$$y = 3$$

X	y
0	0
2	3



389 Graph $y = \frac{2}{3}x$

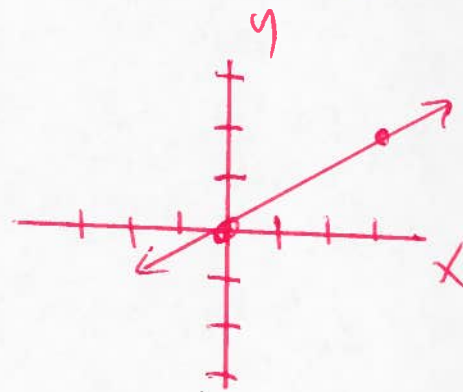
$$y = \frac{2}{3}(0)$$

$$y = 0$$

$$y = \frac{2}{3}(3)$$

$$y = 2$$

X	y
0	0
3	2



390 Graph $y = x + 2$

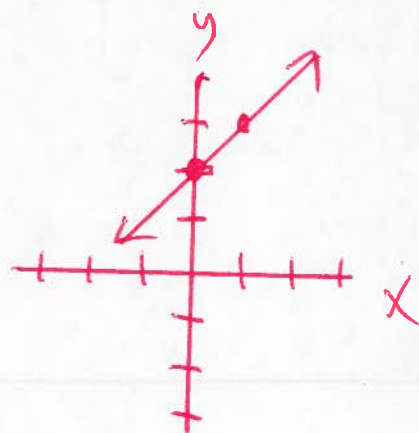
$$y = 0 + 2$$

$$y = 2$$

$$y = 1 + 2$$

$$y = 3$$

X	y
0	2
1	3



391 Graph $y = x - 2$

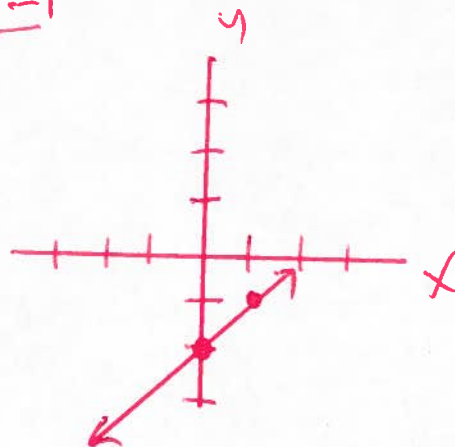
$$y = 0 - 2$$

$$y = -2$$

$$y = 1 - 2$$

$$y = -1$$

X	y
0	-2
1	-1



392 Graph $y = 2x - 4$

$$y = 2(0) - 4$$

$$y = 0 - 4$$

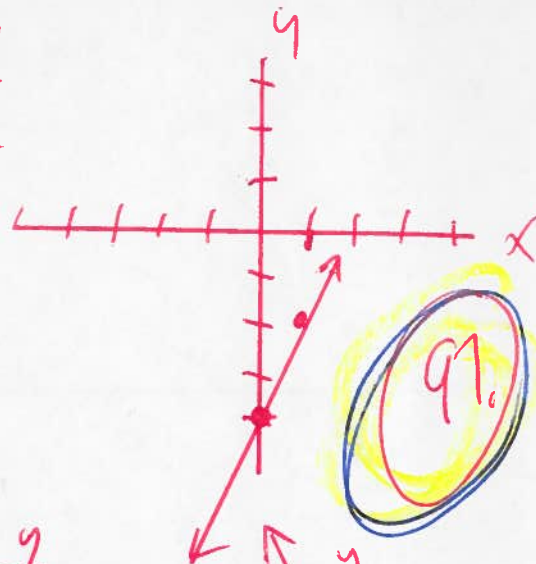
$$y = -4$$

$$y = 2(1) - 4$$

$$y = 2 - 4$$

$$y = -2$$

x	y
0	-4
1	-2



393 Graph $y = -2x + 4$

$$y = -2(0) + 4$$

$$y = 0 + 4$$

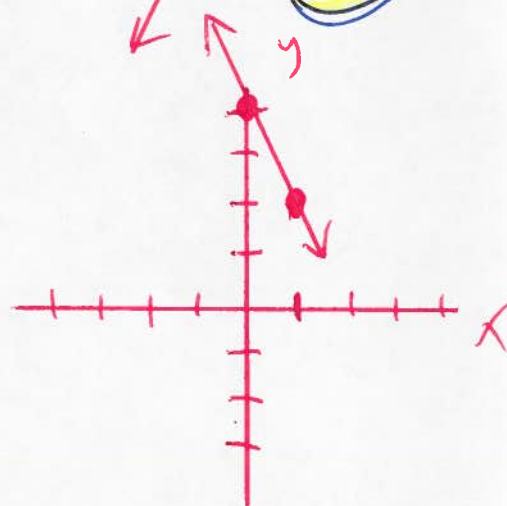
$$y = 4$$

$$y = -2(1) + 4$$

$$y = -2 + 4$$

$$y = 2$$

x	y
0	4
1	2



394 Graph $y = x^2$

$$y = (-1)^2$$

$$y = (0)^2$$

$$y = (-1)(-1)$$

$$y = (0)(0)$$

$$y = 1$$

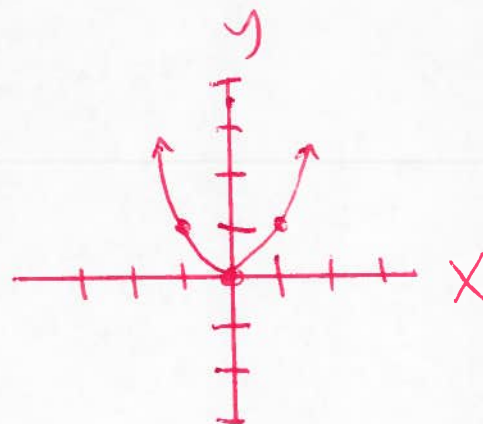
$$y = 0$$

$$y = (1)^2$$

$$y = (1)(1)$$

$$y = 1$$

x	y
-1	1
0	0
1	1



395. Graph $y = -x^2$

$$y = -(-1)^2$$

$$y = -(-1)(-1)$$

$$y = -(1)$$

$$y = -1$$

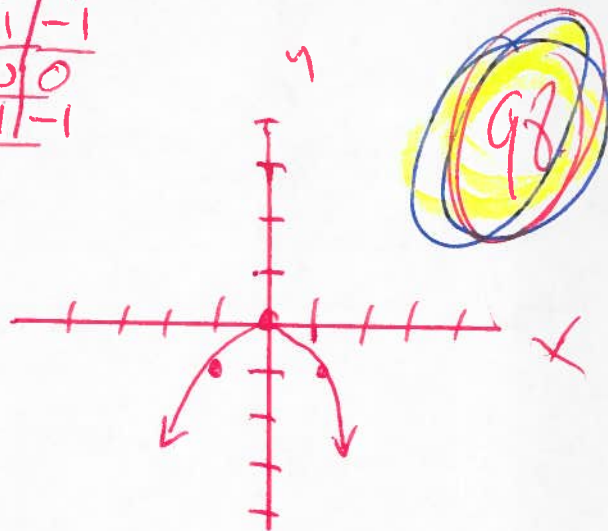
$$y = -(0)^2$$

$$y = -(0)(0)$$

$$y = -(0)$$

$$y = 0$$

x	y
-1	-1
0	0
1	-1



$$y = -(1)^2$$

$$y = -(1)(1)$$

$$y = -(1)$$

$$y = -1$$

396. Graph $y = x^2 - 4$

$$y = (-1)^2 - 4$$

$$y = (0)^2 - 4$$

$$y = (-1)(-1) - 4$$

$$y = (0)(0) - 4$$

$$y = 1 - 4$$

$$y = 0 - 4$$

$$y = -3$$

$$y = -4$$

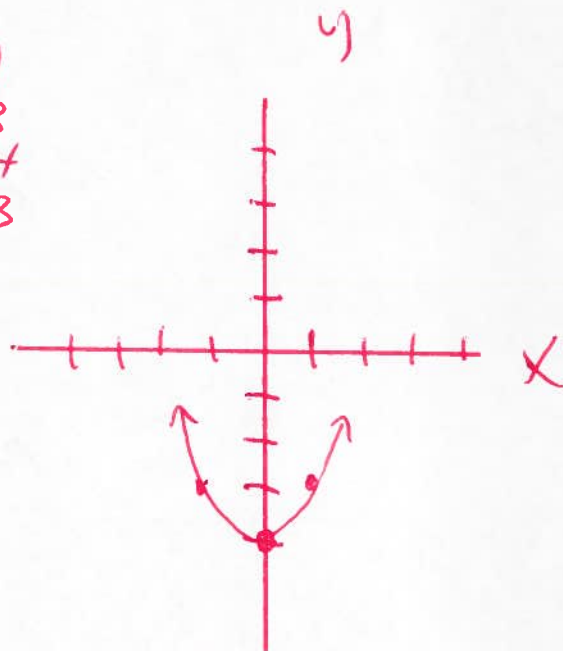
$$y = (1)^2 - 4$$

$$y = (1)(1) - 4$$

$$y = 1 - 4$$

$$y = -3$$

x	y
-1	-3
0	-4
1	-3



397 Graph $y = x^2 + 4$

$$y = (-1)^2 + 4 \quad y = (0)^2 + 4$$

$$y = (-1)(-1) + 4 \quad y = (0)(0) + 4$$

$$y = 1 + 4 \quad y = 0 + 4$$

$$y = 5 \quad y = 4$$

$$y = (1)^2 + 4$$

$$y = (1)(1) + 4$$

$$y = 1 + 4$$

$$y = 5$$

398 Graph $y = (x+1)^2 - 4$

$$y = (-2+1)^2 - 4 \quad y = (-1+1)^2 - 4$$

$$y = (-1)^2 - 4 \quad y = (0)^2 - 4$$

$$y = (-1)(-1) - 4 \quad y = (0)(0) - 4$$

$$y = 1 - 4 \quad y = 0 - 4$$

$$y = -3 \quad y = -4$$

$$y = (0+1)^2 - 4$$

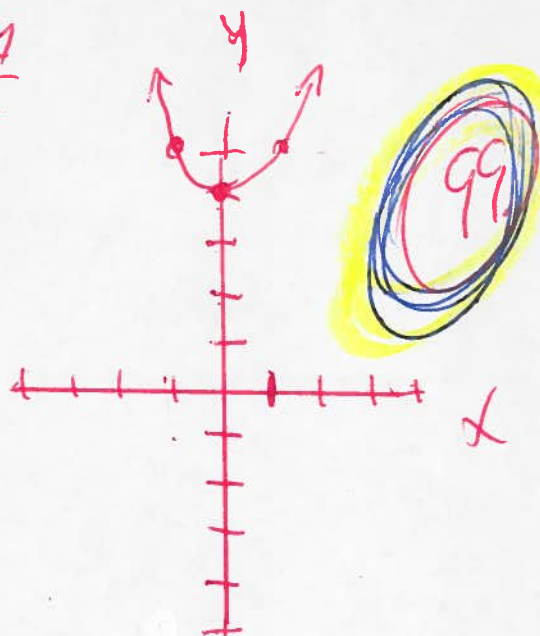
$$y = (1)^2 - 4$$

$$y = (1)(1) - 4$$

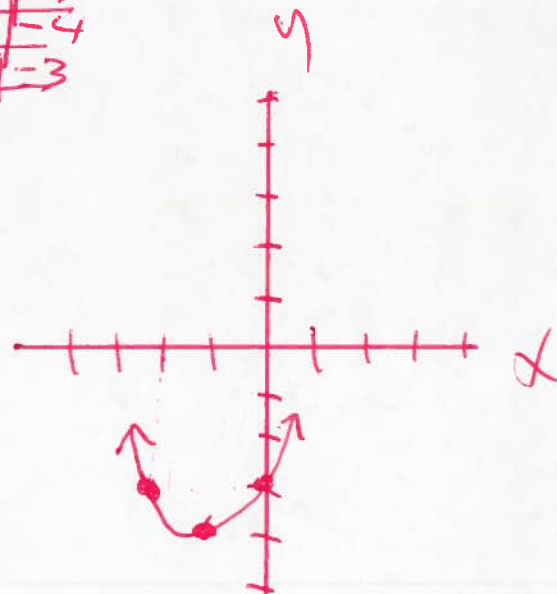
$$y = 1 - 4$$

$$y = -3$$

X	y
-1	5
0	4
1	5



X	y
-2	-3
-1	-4
0	-3



(399) Graph

$$y = -(x+1)^2 + 4$$

$$y = -(-2+1)^2 + 4$$

$$y = -(-1)^2 + 4$$

$$y = -(-1)(-1) + 4$$

$$y = -(1) + 4$$

$$y = -1 + 4$$

$$y = 3$$

$$y = -(0+1)^2 + 4$$

$$y = -(1)^2 + 4$$

$$y = -(1)(1) + 4$$

$$y = -1 + 4$$

$$y = 3$$

$$y = -(-1+1)^2 + 4$$

$$y = -(0)^2 + 4$$

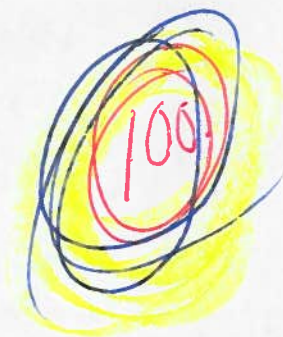
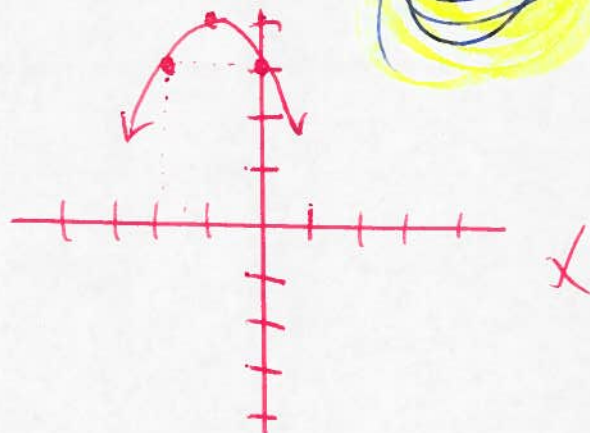
$$y = -(0)(0) + 4$$

$$y = -(0) + 4$$

$$y = 0 + 4$$

$$y = 4$$

X	y
-2	3
-1	4
0	3



(400) Graph

$$y = x^2 + 2x - 3$$

$$y = (-2)^2 + 2(-2) - 3$$

$$y = (-2)(-2) + 2(-2) - 3$$

$$y = 4 - 4 - 3$$

$$y = -3$$

$$y = (0)^2 + 2(0) - 3$$

$$y = (0)(0) + 2(0) - 3$$

$$y = 0 + 0 - 3$$

$$y = -3$$

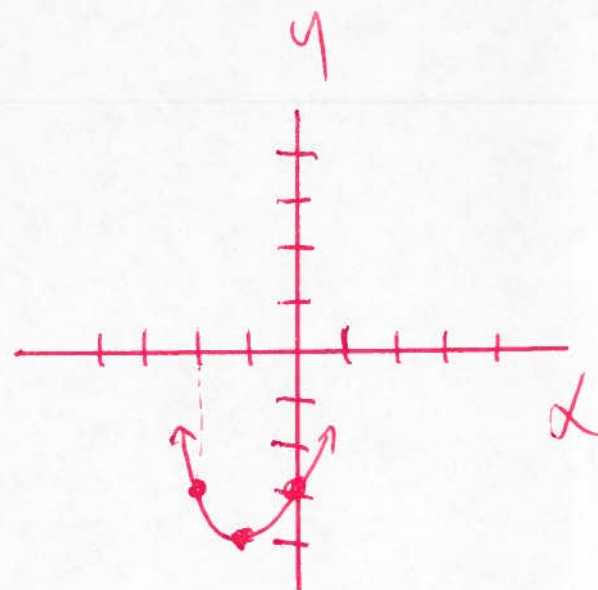
$$y = (-1)^2 + 2(-1) - 3$$

$$y = (-1)(-1) + 2(-1) - 3$$

$$y = 1 - 2 - 3$$

$$y = -4$$

X	y
-2	-3
-1	-4
0	-3



401 Graph $y = -x^2 - 2x + 3$

$$y = -(-2)^2 - 2(-2) + 3$$

$$y = -(-2)(-2) - 2(-2) + 3$$

$$y = -(4) - 2(-2) + 3$$

$$y = -4 + 4 + 3$$

$$y = 3$$

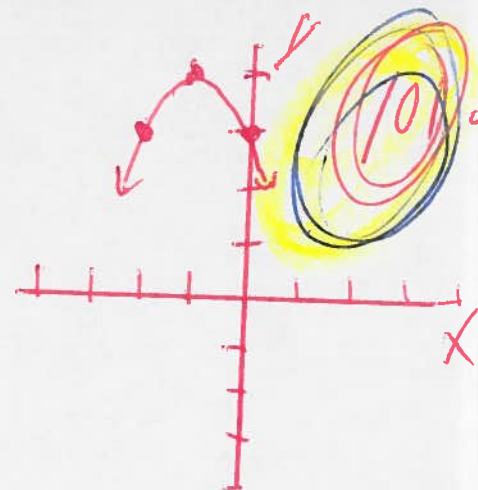
$$y = -(-1)^2 - 2(-1) + 3$$

$$y = -(-1)(-1) - 2(-1) + 3$$

$$y = -(1) - 2(-1) + 3$$

$$y = -1 + 2 + 3$$

X	y
-2	3
-1	4
0	3



$$y = -(0)^2 - 2(0) + 3$$

$$y = -(0)(0) - 2(0) + 3$$

$$y = 0 + 0 + 3$$

$$y = 3$$

402 Graph $y = 2x^2 + 4x - 3$

$$y = 2(-2)^2 + 4(-2) - 3$$

$$y = 2(-2)(-2) + 4(-2) - 3$$

$$y = 2(4) + 4(-2) - 3$$

$$y = 8 - 8 - 3$$

$$y = -3$$

$$y = 2(-1)^2 + 4(-1) - 3$$

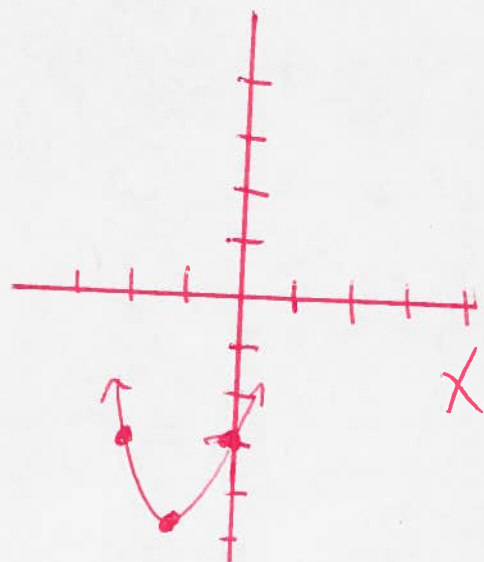
$$y = 2(-1)(-1) + 4(-1) - 3$$

$$y = 2(1) + 4(-1) - 3$$

$$y = 2 - 4 - 3$$

$$y = -5$$

X	y
-2	-3
-1	-5
0	-3



$$y = 2(0)^2 + 4(0) - 3$$

$$y = 2(0)(0) + 4(0) - 3$$

$$y = 2(0) + 4(0) - 3$$

$$y = 0 + 0 - 3$$

$$y = -3$$

✓✓✓

403 Graph $y = -2x^2 - 4x + 6$

$$y = -2(-2)^2 - 4(-2) + 6$$

$$y = -2(-1)^2 - 4(-1) + 6$$

$$y = -2(-2)(-2) - 4(-2) + 6$$

$$y = -2(-1)(-1) - 4(-1) + 6$$

$$y = -2(4) - 4(-2) + 6$$

$$y = -2(1) - 4(-1) + 6$$

$$y = -8 + 8 + 6$$

$$y = -2 + 4 + 6$$

$$y = 6$$

$$y = 8$$

$$y = -2(0)^2 - 4(0) + 6$$

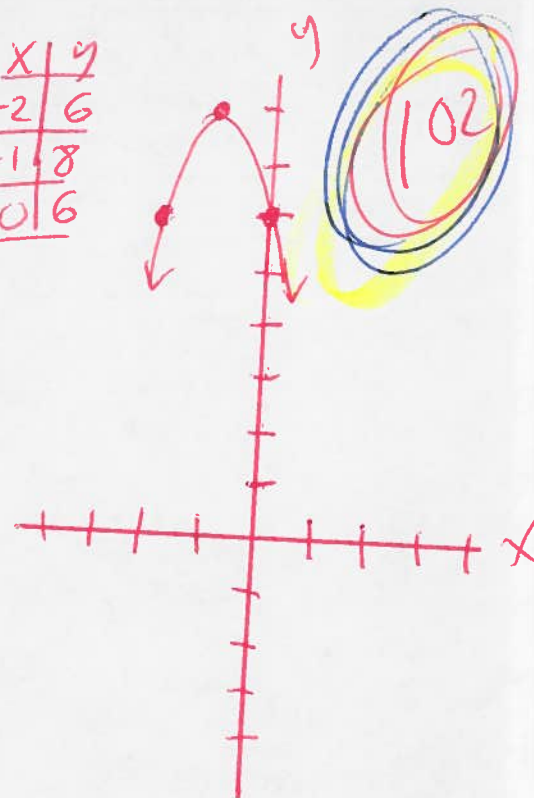
$$y = -2(0)(0) - 4(0) + 6$$

$$y = -2(0) - 4(0) + 6$$

$$y = 0 + 0 + 6$$

$$y = 6$$

x	y
-2	6
-1	8
0	6



404 Equation of line thru $(0,0)$, $(1,2)$

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1) \quad \text{two point formula}$$

$$y - (0) = \frac{(0) - (2)}{(0) - (1)} (x - (0))$$

$$y = \frac{0-2}{0-1} (x)$$

$$y = \frac{-2}{-1} x$$

$$y = 2x$$

405 Equation of line thru $(0,0)$ $(1,-2)$.

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$
 $x_1 \ y_1 \quad x_2 \ y_2$
 two point formula

$$y - (0) = \frac{(0) - (-2)}{(0) - (1)} (x - (0))$$

$$y = \frac{0+2}{0-1} (x)$$

$$y = \frac{2}{-1} x$$

$$y = -2x$$

406 Equation of line thru $(0,0)$ $(2,1)$.

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$
 $x_1 \ y_1 \quad x_2 \ y_2$
 two point formula

$$y - (0) = \frac{(0) - (1)}{(0) - (2)} (x - (0))$$

$$y = \frac{0-1}{0-2} (x)$$

$$y = \frac{-1}{-2} x$$

$$y = \frac{1}{2} x$$

407 Equation of line thru $(0,0)$ $(2,-1)$.

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$
 $x_1 \ y_1 \quad x_2 \ y_2$
 two point formula

$$y - (0) = \frac{(0) - (-1)}{(0) - (2)} (x - (0))$$

$$y = \frac{0+1}{0-2} (x)$$

$$y = -\frac{1}{2} x$$



408 Equation of line thru $(0,0)$, $(2,3)$.
 $y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$ two point formula

$$y - (0) = \frac{(0) - (3)}{(0) - (2)} (x - (0))$$

$$y = \frac{0-3}{0-2} (x)$$

$$y = \frac{-3}{-2} x$$

$$y = \frac{3}{2} x$$

409 Equation of line thru $(0,0)$, $(3,2)$
 $y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$ two point formula

$$y - (0) = \frac{(0) - (2)}{(0) - (3)} (x - (0))$$

$$y = \frac{0-2}{0-3} (x)$$

$$y = \frac{-2}{-3} x$$

$$y = \frac{2}{3} x$$

410 Equation of line thru $(0,2)$, $(1,3)$.
 $y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$ two point formula

$$y - (2) = \frac{(2) - (3)}{(0) - (1)} (x - (0))$$

$$y - 2 = \frac{2-3}{0-1} (x)$$

$$y - 2 = \frac{-1}{-1} x$$

$$y - 2 = 1x$$

$$y - 2 = x$$

$$y - 2 + 2 = x + 2$$

$$y = x + 2$$

104

411. Equation of line thru $(0, -2), (1, -1)$.
 x_1, y_1, x_2, y_2

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$

Two point formula

$$y - (-2) = \frac{(-2) - (-1)}{(0) - (1)} (x - (0))$$

$$y + 2 = \frac{-2 + 1}{0 - 1} (x)$$

$$y + 2 = \frac{-1}{-1} x$$

$$y + 2 = 1x$$

$$y + 2 = x$$

$$y + 2 - 2 = x - 2$$

$$y = x - 2$$

412. Equation of line thru $(0, -4), (1, -2)$.
 x_1, y_1, x_2, y_2

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$

Two point formula

$$y - (-4) = \frac{(-4) - (-2)}{(0) - (1)} (x - (0))$$

$$y + 4 = \frac{-4 + 2}{0 - 1} (x)$$

$$y + 4 = \frac{-2}{-1} x$$

$$y + 4 = 2x$$

$$y + 4 - 4 = 2x - 4$$

$$y = 2x - 4$$



413 Equation of line thru $(0, 4)$, $(1, 2)$.

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$

Two point formula

$$y - (4) = \frac{(4) - (2)}{(0) - (1)} (x - (0))$$

$$y - 4 = \frac{4 - 2}{0 - 1} (x)$$

$$y - 4 = \frac{2}{-1} x$$

$$y - 4 = -2x$$

$$y - 4 + 4 = -2x + 4$$

$$y = -2x + 4$$

414 Equation of line thru $(0, 0)$, $(1, 2)$.

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$

Two point formula

$$y - (0) = \frac{(0) - (2)}{(0) - (1)} (x - (0))$$

$$y = \frac{0 - 2}{0 - 1} (x)$$

$$y = \frac{-2}{-1} x$$

$$y = 2x$$



415 Equation of line thru $(0,0), (2,1)$.
 $x_1 \ y_1 \ x_2 \ y_2$

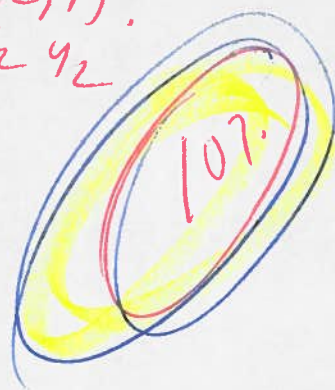
$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$

$$y - (0) = \frac{(0) - (1)}{(0) - (2)} (x - (0))$$

$$y = \frac{0-1}{0-2} (x)$$

$$y = \frac{-1}{-2} x$$

$$y = \frac{1}{2} x$$



416 Equation of line thru $(0,0), (2,3)$.
 $x_1 \ y_1 \ x_2 \ y_2$

$$y - y_1 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_1)$$

$$y - (0) = \frac{(0) - (3)}{(0) - (2)} (x - (0))$$

$$y = \frac{0-3}{0-2} (x)$$

$$y = \frac{-3}{-2} x$$

$$y = \frac{3}{2} x$$

417 IF y varies directly as x and
 $y=80$ when $x=2$ then what is the
value of x when $y=240$?

$$y = kx$$

$$80 = k(2)$$

$$80 = 2k$$

$$\frac{80}{2} = \frac{2k}{2}$$

$$40 = k$$

$$y = 40x$$

$$240 = 40x$$

$$\frac{240}{40} = \frac{40x}{40}$$

$$6 = x$$

Substitution

418 y is directly proportional to x and $y=3$ when $x=5$. What is the value of y when $x=15$?

$$y = kx$$

$$3 = k(5)$$

$$\frac{3}{5} = \frac{k}{5}$$

$$\frac{3}{5} = k$$

$$y = \frac{3}{5}x$$

$$y = \frac{3}{5}(15) \quad \text{Subst}$$

$$y = 3(3)$$

$$y = 9$$



419 On a credit card the total repayment y varies directly as the amount charged x . If $y=80$ when $x=10$ then what is the value of x when $y=16000$?

$$y = kx$$

$$80 = k(10)$$

$$80 = 10k$$

$$\frac{80}{10} = \frac{10k}{10}$$

$$8 = k$$

$$y = 8x$$

$$16000 = 8x$$

$$\text{Subs } \frac{16000}{8} = \frac{8x}{8}$$

$$2000 = x$$

420 If a box in the shape of a cube has a side of $\frac{5}{x}$ then find the volume.

$$V = LWH$$

$$V = \left(\frac{5}{x}\right)\left(\frac{5}{x}\right)\left(\frac{5}{x}\right)$$

$$V = \frac{125}{x^3}$$

(421) The probability of head on a coin toss is $\frac{1}{2}$. Find the probability of 2 heads in a row.

$$P(\text{Head}) = \frac{1}{2}$$

$$P(\text{Head}) \cdot P(\text{Head}) =$$

$$\left(\frac{1}{2}\right) \left(\frac{1}{2}\right) =$$

$$\frac{1}{4} =$$



(422) The probability of rain every day is $\frac{1}{4}$. Find the probability of no rain in two days in a row.

$$P(\text{rain}) = \frac{1}{4} \rightarrow P(\text{No rain}) = 1 - \frac{1}{4}$$

$$= \frac{1}{1} - \frac{1}{4}$$

$$= \frac{4}{4} - \frac{1}{4}$$

$$= \frac{4-1}{4}$$

$$= \frac{3}{4}$$

$$P(\text{No rain}) \cdot P(\text{No rain}) =$$

$$\left(\frac{3}{4}\right) \left(\frac{3}{4}\right) =$$

$$\frac{9}{16} =$$

(423) If you get m dollars per hour for the first 40 hours and $1\frac{1}{2}$ times for each hour over 40 then how much do you get for 58 hours?

$$\begin{aligned}
 &40(m) + (58-40) (1\frac{1}{2})(m) = \\
 &40m + 18(\frac{3}{2})m = \\
 &40m + 9(3)m = \\
 &40m + 27m =
 \end{aligned}$$

$$67m =$$

(424)



If the perimeter is 96 then find the area.

$$P = 2L + 2W$$

$$96 = 2(w+8) + 2(w)$$

$$96 = 2w + 16 + 2w$$

$$96 = 4w + 16$$

$$96 - 16 = 4w + 16 - 16$$

$$80 = 4w$$

$$\frac{80}{4} = \frac{4w}{4}$$

$$20 = w$$

$$L = w + 8$$

$$L = 20 + 8$$

$$L = 28$$

$$A = LW$$

$$A = (28)(20)$$

$$A = 560 \text{ area square units}$$

425 For t , 89, 87, 83, 60, the median is 83. Which number is not possible for t ? {45, 62, 74, 88}.

45, 60, , ^{MEDIAN} 83, 87, 89 Good ✓

 , 60, 62, ^{Median} 83, 87, 89 Good ✓

 , 60, 74, ^{Median} 83, 87, 89 Good ✓

 , 60, , 83, 87, 88, 89 ^{NOT possible} **BAD**

426 How many cubical blocks of lard, each with edges of length of 2 inches are needed to fill a rectangular pan with dimensions of 10 inches, 16 inches, and 20 inches.

$$V = LWH$$

$$\frac{(10)(16)(20)}{(2)(2)(2)} =$$

$$\frac{(5)(8)(10)}{(1)(1)(1)} =$$

$$\frac{400}{1} =$$

$$400$$

(427) At a book store a book was on sale for 20% off. If the original price of the book was B , then what is the sale price in terms of B ?

$$B - .20B =$$
$$1.00B - .20B =$$

$$0.80B =$$

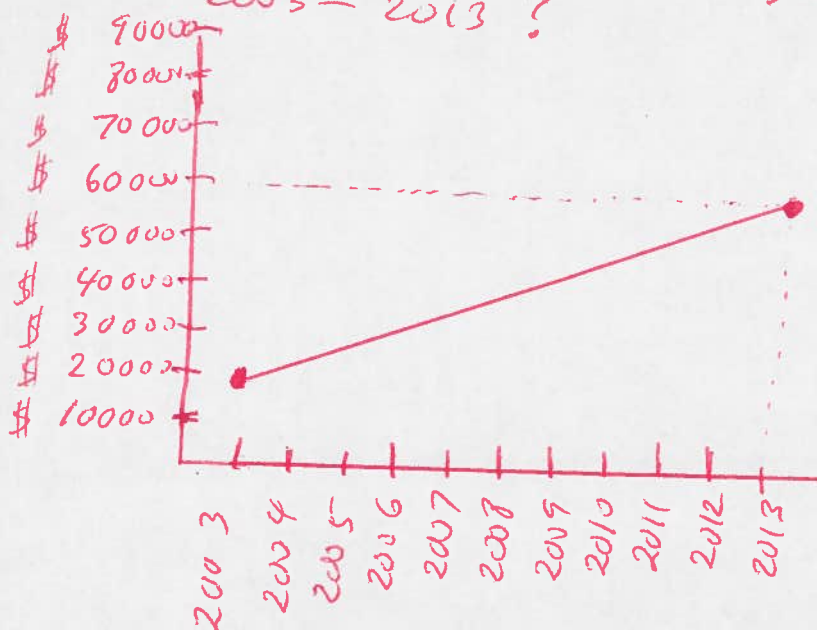
(428) Mike wants to buy a car for 20% off. If Mike also gets a 10% discount for being a member of the navy then what will be the sale price if the original price was C dollars?

$$C - .20C =$$
$$1.00C - .20C =$$
$$.80C = \text{1st discount}$$

$$.80C - .10(.80C) =$$

$$.80C - .08C =$$
$$0.72C = \text{2nd discount}$$

429 What is the percent increase in tuition at the college from 2003 - 2013?



113

$$\frac{\text{New} - \text{Old}}{\text{Old}} =$$

$$\frac{60,000 - 20,000}{20,000} =$$

$$\frac{40,000}{20,000} =$$

$$2 =$$

200% = increase

430 One hog weighs 40 pounds more than another. If 3 times the weight of the small hog is equal to twice the weight of the large hog then what is the weight of the small hog?

Let x = small hog weight

Let $x + 40$ = Large hog weight

$$3(x) = 2(x + 40)$$

$$3x = 2x + 80$$

$$3x - 2x = 2x + 80 - 2x$$

$x = 80$

small hog weight

431 A hog runs at an average speed of 10 miles per hour for t hours and travels M miles. Which formulas are correct for the information?

Use $d = rt$ Distance = (rate)(time)

I $M = 10t$ Correct ✓

II $M + t = 10$
 $M + t - t = 10 - t$

$M = 10 - t$ Wrong X

III $Mt = 10$

$\frac{Mt}{t} = \frac{10}{t}$

$M = \frac{10}{t}$ Wrong X

IV $\frac{M}{10} = t$

$10 \left(\frac{M}{10} \right) = 10(t)$

$M = 10t$ Correct ✓

432 The probability of a prize in a box of Candy is 25%. Find the probability that three boxes will have No Prize.

$P(\text{Prize}) = 25\%$

$\rightarrow P(\text{No Prize}) = 1 - .25$
 $P(\text{No Prize}) = 1.00 - .25$

$\leftarrow P(\text{No Prize}) = .75$
 $= 75\%$

$P(\text{No Prize}) \cdot P(\text{No Prize}) \cdot P(\text{No Prize})$

$\left(\frac{3}{4} \right) \left(\frac{3}{4} \right) \left(\frac{3}{4} \right) = \frac{27}{64}$

$= \frac{75}{100} = \left(\frac{3}{4} \right)$

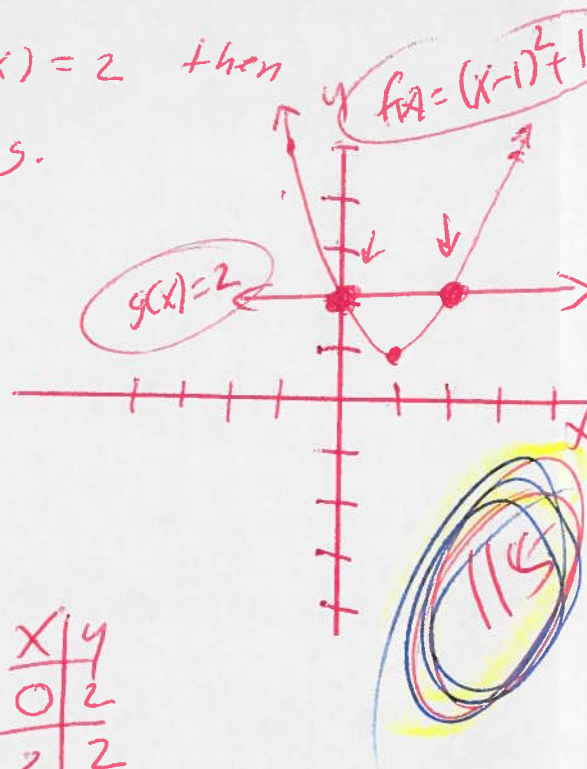
433 If $f(x) = (x-1)^2 + 1$ and $g(x) = 2$ then find the intersection by graphing.

$$\begin{array}{ll} f(0) = (0-1)^2 + 1 & f(1) = (1-1)^2 + 1 \\ f(0) = (-1)^2 + 1 & f(1) = (0)^2 + 1 \\ f(0) = (-)(1-1) + 1 & f(1) = (0)(0) + 1 \\ f(0) = 1 + 1 & f(1) = 0 + 1 \\ f(0) = 2 & f(1) = 1 \end{array}$$

$$\begin{array}{l} f(2) = (2-1)^2 + 1 \\ f(2) = (1)^2 + 1 \\ f(2) = (1)(1) + 1 \\ f(2) = 1 + 1 \\ f(2) = 2 \end{array}$$

$$\begin{array}{l} g(x) = 2 \\ g(0) = 2 \\ g(2) = 2 \end{array}$$

x	y
0	2
2	2



the **Two** intersections are $(0, 2)$ and $(2, 2)$

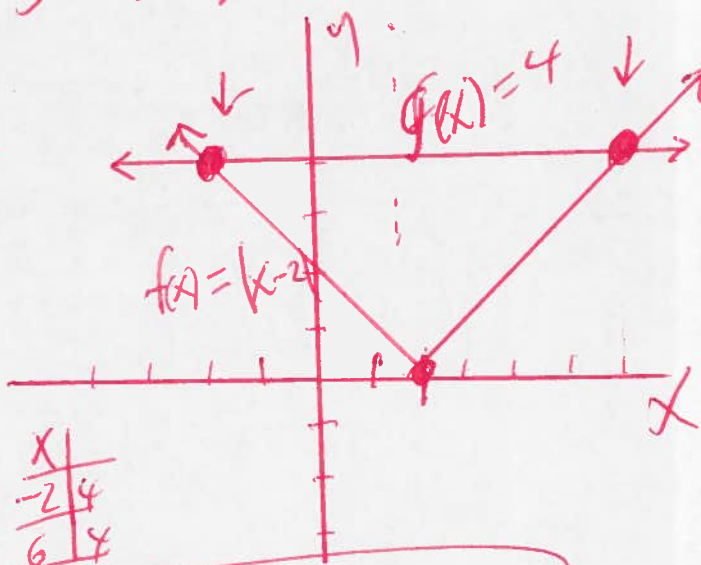
434 If $f(x) = |x-2|$ and $g(x) = 4$ then find the intersection by graphing.

$$\begin{array}{ll} f(x) = |x-2| & f(x) = |x-2| \\ f(-2) = |-2-2| & f(2) = |2-2| \\ f(-2) = |-4| & f(2) = |0| \\ f(-2) = 4 & f(2) = 0 \end{array}$$

$$\begin{array}{l} f(6) = |6-2| \\ f(6) = |4| \\ f(6) = 4 \end{array}$$

$$\begin{array}{l} f(x) = 4 \\ g(-2) = 4 \end{array}$$

$$g(6) = 4$$



the **Two** intersections are $(-2, 4)$, $(6, 4)$

(435) $4x^2 + 12x - 11 = 0$ use Quadratic formula

$a=4, b=12, c=-11$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(12) \pm \sqrt{(12)^2 - 4(4)(-11)}}{2(4)}$$

$$x = \frac{-12 \pm \sqrt{(12)(12) - 4(-44)}}{8}$$

$$x = \frac{-12 \pm \sqrt{144 + 176}}{8}$$

$$x = \frac{-12 \pm \sqrt{320}}{8}$$

$$x = \frac{-12 \pm \sqrt{64 \cdot 5}}{8}$$

$$x = \frac{-12 \pm \sqrt{64} \sqrt{5}}{8}$$

$$x = \frac{-12 \pm 8\sqrt{5}}{8}$$

$$x = \frac{\cancel{4}(-3 \pm 2\sqrt{5})}{\cancel{4} \cdot 2}$$

$$x = \frac{-3 \pm 2\sqrt{5}}{2} \text{ OR}$$

Primes

2, 3, 5, 7, 11, 13, ...

$$\begin{array}{r} 2 \overline{) 320} \\ 2 \overline{) 160} \\ 2 \overline{) 80} \\ 2 \overline{) 40} \\ 2 \overline{) 20} \\ 2 \overline{) 10} \\ 5 \end{array}$$



$$\left\{ \frac{-3 + 2\sqrt{5}}{2}, \frac{-3 - 2\sqrt{5}}{2} \right\}$$

$$(436) \quad 4x^2 + 12x - 3 = 0$$

$$a=4, \quad b=12, \quad c=-3$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(12) \pm \sqrt{(12)^2 - 4(4)(-3)}}{2(4)}$$

$$x = \frac{-12 \pm \sqrt{(12)(12) - 4(-12)}}{8}$$

$$x = \frac{-12 \pm \sqrt{144 + 48}}{8}$$

$$x = \frac{-12 \pm \sqrt{192}}{8}$$

$$x = \frac{-12 \pm \sqrt{64 \cdot 3}}{8}$$

$$x = \frac{-12 \pm \sqrt{64} \sqrt{3}}{8}$$

$$x = \frac{-12 \pm 8\sqrt{3}}{8}$$

$$x = \frac{-3 \pm 2\sqrt{3}}{2}$$

$$x = \frac{-3 \pm 2\sqrt{3}}{2}$$

use Quadratic formula

Primes
2, 3, 5, 7, 11, 13, ...

$$2 \overline{) 192}$$

$$2 \overline{) 96}$$

$$2 \overline{) 48}$$

$$2 \overline{) 24}$$

$$2 \overline{) 12}$$

$$2 \overline{) 6}$$

$$3 \overline{) 3}$$

$$117$$

$$\left\{ \frac{-3 - 2\sqrt{3}}{2}, \frac{-3 + 2\sqrt{3}}{2} \right\}$$

(437) $x^2 + 2x + 5 = 0$ use Quadratic formula

$$a=1, b=2, c=5$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-2) \pm \sqrt{(2)^2 - 4(1)(5)}}{2(1)}$$

$$x = \frac{-2 \pm \sqrt{(2)(2) - 4(5)}}{2}$$

$$x = \frac{-2 \pm \sqrt{4 - 20}}{2}$$

$$x = \frac{-2 \pm \sqrt{-16}}{2}$$

$$x = \frac{-2 \pm 4i}{2}$$

$$x = -\frac{2}{2} \pm \frac{4i}{2}$$

$$x = -1 \pm 2i$$

$$\{-1 - 2i, -1 + 2i\}$$

$$\sqrt{-1} = i$$



(438) $2x^2 + 4x + 10 = 0$

$a=2, b=4, c=10$

use Quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(4) \pm \sqrt{(4)^2 - 4(2)(10)}}{2(2)}$$

$$x = \frac{-4 \pm \sqrt{(4)(4) - 4(20)}}{4}$$

$$x = \frac{-4 \pm \sqrt{16 - 80}}{4}$$

$$x = \frac{-4 \pm \sqrt{-64}}{4}$$

$$x = \frac{-4 \pm 8i}{4}$$

$$x = \frac{-4}{4} \pm \frac{8i}{4}$$

$$x = -1 \pm 2i$$

$$\sqrt{-1} = i$$

$$\{-1 - 2i, -1 + 2i\}$$

119

(439) Evaluate $pr - r$ if $p = -7$, $r = \frac{1}{8}$

$$(-7)(\frac{1}{8}) - (\frac{1}{8}) =$$

$$-\frac{7}{8} - \frac{1}{8} =$$

$$\frac{-7-1}{8} =$$

$$\frac{-8}{8} =$$

$$-1 =$$



(440) simplify $P - .20P =$

$$1.00P - .20P =$$

$$.80P =$$

(441) Find P if $P = 2(L + W)$ $L = 10$, $W = 6$

$$P = 2(10 + 6)$$

$$P = 2(16)$$

$$P = 32$$

(442) Find Y if $Y = \sqrt{X+1} + 2$ $X = 3$

$$Y = \sqrt{3+1} + 2$$

$$Y = \sqrt{4} + 2$$

$$Y = 2 + 2$$

$$Y = 4$$

$$(X, Y) = (3, 4)$$

443 Find Y if $Y = X^{-2}$ $X = 8$

$$Y = (8)^{-2}$$

$$Y = \frac{1}{8^2} \quad \text{rewrite}$$

$$Y = \frac{1}{8 \cdot 8}$$

$$Y = \frac{1}{64}$$



444

Find Y if $Y = \frac{2}{X} + \frac{3}{X}$ $X = \frac{1}{4}$

$$Y = \frac{2}{\frac{1}{4}} + \frac{3}{\frac{1}{4}}$$

$$Y = \frac{2}{\frac{1}{4}} + \frac{3}{\frac{1}{4}} \quad \text{rewrite}$$

$$Y = \frac{2}{1} \cdot \frac{4}{1} + \frac{3}{1} \cdot \frac{4}{1}$$

$$Y = \frac{8}{1} + \frac{12}{1}$$

$$Y = 8 + 12$$

$$Y = 20$$

445

$$\frac{X+2}{X} = 17$$

$$\frac{X+2}{X} = \frac{17}{1}$$

$$1(X+2) = 17(X)$$

$$1X + 2 = 17X$$

$$1X + \cancel{2} - \cancel{2} = 17X - 2$$

$$1X = 17X - 2$$

cross mult

$$1X - 17X = 17X - 2 - 17X$$

$$-16X = -2$$

$$\frac{-16X}{-16} = \frac{-2}{-16}$$

$$X = \frac{2}{16}$$

$$X = \frac{2 \cdot 1}{2 \cdot 8}$$

$$X = \frac{1}{8}$$

$$(446) \quad 1 + \frac{8}{x} = -3$$

$$1 + \frac{8}{x} - 1 = -3 - 1$$

$$\frac{8}{x} = -4$$

$$\frac{8}{x} = \frac{-4}{1}$$

$$1(8) = -4(x) \quad \text{cross mult}$$

$$8 = -4x$$

$$\frac{8}{-4} = \frac{-4x}{-4}$$

$$-2 = x$$

$$x =$$

$$122$$

$$(447) \quad 9x - 1 = x \quad \text{then}$$

$$16x =$$

$$9x - 1 = x + 1$$

$$9x = x + 1$$

$$9x - x = x + 1 - x$$

$$8x = 1$$

$$\frac{8x}{8} = \frac{1}{8}$$

$$x = \frac{1}{8}$$

$$\text{subst } 16x =$$

$$16\left(\frac{1}{8}\right) =$$

$$2(1) =$$

$$2 =$$

$$\begin{aligned} 448 \quad 7x - 3 &= 5x + 4 \\ 7x - 3 + 3 &= 5x + 4 + 3 \\ 7x &= 5x + 7 \\ 7x - 5x &= 5x + 7 - 5x \\ 2x &= 7 \end{aligned}$$

$$\frac{2x}{2} = \frac{7}{2}$$

$$x = \frac{7}{2}$$

$$x =$$

$$123$$

$$\begin{aligned} 449 \quad 7x - 3 &= 5x - 3 \\ 7x - 3 + 3 &= 5x - 3 + 3 \\ 7x &= 5x \\ 7x - 5x &= 5x - 5x \\ 2x &= 0 \end{aligned}$$

$$\frac{2x}{2} = \frac{0}{2}$$

$$x = 0$$

$$x =$$

$$\begin{aligned} 450 \quad 6(x - 2) - 12 &= 3x \\ 6x - 12 - 12 &= 3x \\ 6x - 24 &= 3x \\ 6x - 24 + 24 &= 3x + 24 \\ 6x &= 3x + 24 \\ 6x - 3x &= 3x + 24 - 3x \\ 3x &= 24 \end{aligned}$$

$$\frac{3x}{3} = \frac{24}{3}$$

$$x = 8$$

$$x =$$

451. $\frac{2}{5x} + \frac{1}{x} = 14$

LCD = $5x$

$$\frac{2}{5x}(5x) + \frac{1}{x}(5x) = \frac{14}{1}(5x)$$

$$2(1) + 1(5) = 70x$$

$$2 + 5 = 70x$$

$$7 = 70x$$

$$\frac{7}{70} = \frac{70x}{70}$$

$$\frac{7 \cdot 1}{7 \cdot 10} = x$$

$$\frac{1}{10} = x$$

1241

452.

$$-2x + 10 < 30$$

$$-2x + 10 - 10 < 30 - 10$$

$$-2x < 20$$

$$\frac{-2x}{-2} > \frac{20}{-2} \quad \text{Turn the alligator}$$

$$x > -10$$

453.

$$\frac{x}{5} + \frac{3x}{10} > 20$$

LCD = 10

$$\frac{x}{5}(10) + \frac{3x}{10}(10) > 20(10)$$

$$x(2) + 3x(1) > 200$$

$$2x + 3x > 200$$

$$5x > 200$$

$$\frac{5x}{5} > \frac{200}{5}$$

$$x > 40$$

454 $y = \frac{1}{5}mx^2$

$x =$

$5(y) = 5(\frac{1}{5})mx^2$

$LCO = 5$

$5y = mx^2$

$\frac{5y}{m} = \frac{mx^2}{m}$

$\frac{5y}{m} = x^2$

125

$\pm \sqrt{\frac{5y}{m}} = \sqrt{x^2}$

$\pm \sqrt{\frac{5y}{m}} = x$

$x = -\sqrt{\frac{5y}{m}}$ or $x = \sqrt{\frac{5y}{m}}$

455.

$4x^2 + 14y^2 = m$ then $2x^2 + 7y^2 = ?$

$\frac{4x^2}{2} + \frac{14y^2}{2} = \frac{m}{2}$

$2x^2 + 7y^2 = \frac{m}{2}$

456

$f(x) = \frac{x+1}{x-4}$

find $f(1)$

$f(1) = \frac{1+1}{1-4}$

$f(1) = -\frac{2}{3}$

$f(1) = -\frac{2}{3}$

or

$(1, -\frac{2}{3})$

457) $f(x) = \frac{x-1}{x^2-4}$ find $f(2)$

$$f(2) = \frac{(2)-1}{(2)^2-4}$$

$$f(2) = \frac{2-1}{(2)(2)-4}$$

$$f(2) = \frac{1}{4-4}$$

$f(2) = \frac{1}{0}$ undefined



458) $f(x) = |x-1| + 4$ find $f(0)$

$$f(0) = |0-1| + 4$$

$$f(0) = |-1| + 4$$

$$f(0) = 1 + 4$$

$$f(0) = 5$$

OR $(0, 5)$

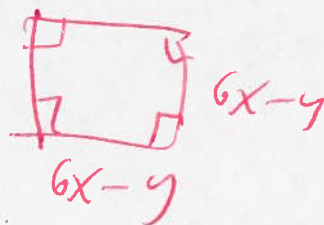
459) find the area of a square with side $= 6x - y$.

$$A = LW$$

$$A = (6x - y)(6x - y)$$

$$A = 36x^2 - 6xy - 6xy + y^2$$

$$A = 36x^2 - 12xy + y^2$$



460 $x^2 - 4 = 3x$

$x^2 - 4 - 3x = 3x - 3x$

$x^2 - 4 - 3x = 0$

$x^2 - 3x - 4 = 0$

$(x+1)(x-4) = 0$

$x+1=0$ OR $x-4=0$

$x+1-1=0-1$ OR $x-4+4=0+4$

$x = -1$ OR $x = 4$

$\{-1, 4\}$

127

461 $\sqrt{x} + 2 = 9$

$\sqrt{x} + 2 - 2 = 9 - 2$

$\sqrt{x} = 7$

$(\sqrt{x})^2 = (7)^2$

$x = 49$

CK $\sqrt{x} + 2 = 9$

$\sqrt{49} + 2 = 9$

$7 + 2 = 9$

$9 = 9$

Good

$\{49\}$

462 $-8x(x-2) = 0$

Set $-8x = 0$ OR $x-2 = 0$

$\frac{-8x}{-8} = \frac{0}{-8}$ OR $x-2+2 = 0+2$

$x = 0$ OR $x = 2$

$\{0, 2\}$

463 If $4x+y=2$ and $(\underset{\uparrow}{-2}, \underset{\uparrow}{Q})$ is a solution then $\boxed{Q =}$

$4x+y = 2$

$4(-2) + y = 2$

$-8 + y = 2$

$-8 + y + 8 = 2 + 8$

$y = 10$

$(x, y) = (-2, 10) = (-2, Q)$ then $\boxed{Q = 10}$

464 Graph $y = \frac{3}{2}x + 1$

$$y = \frac{3}{2}(0) + 1$$

$$y = 0 + 1$$

$$y = 1$$

$$y = \frac{3}{2}(2) + 1$$

$$y = 3 + 1$$

$$y = 4$$

465 $\frac{2}{x} + a = \frac{2}{b}$ then $X =$

$$\frac{2}{x} + \frac{a}{1} = \frac{2}{b}$$

$$\text{LCD} = bx$$

$$\frac{2}{x}(bx) + \frac{a}{1}(bx) = \frac{2}{b}(bx)$$

$$\frac{2bx}{x} + \frac{abx}{1} = \frac{2bx}{b}$$

$$2b + abx = 2x$$

$$2b + abx - 2b = 2x - 2b$$

$$abx = 2x - 2b$$

$$abx - 2x = 2x - 2b - 2x$$

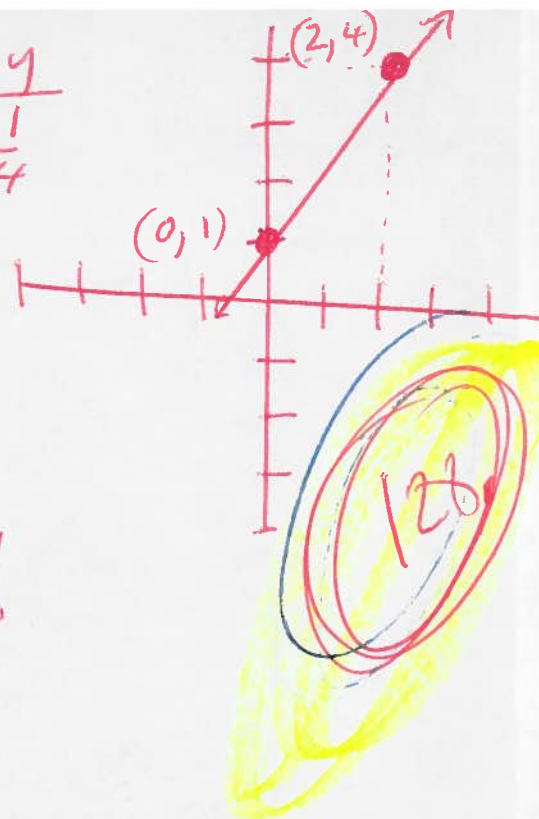
$$abx - 2x = -2b$$

$$X(ab - 2) = -2b \quad \text{factor GCF}$$

$$\frac{X(ab - 2)}{(ab - 2)} = \frac{-2b}{(ab - 2)}$$

$$X = \frac{-2b}{ab - 2}$$

X	y
0	1
2	4



466 If $8x^2 + 40 = m$ then $x^2 + 5 =$ terms of m

$$8x^2 + 40 = m$$

$$\frac{8x^2}{8} + \frac{40}{8} = \frac{m}{8}$$

$$x^2 + 5 = \frac{m}{8} \checkmark$$

129

467. Find V if $V = \pi r^2 h$, $r = 2a$, $h = 3a + 2$

$$V = \pi r^2 h$$

$$V = \pi (2a)^2 (3a + 2)$$

$$V = \pi (2a)(2a)(3a + 2)$$

$$V = \pi (4a^2)(3a + 2)$$

$$V = \pi (12a^3 + 8a^2)$$

$$V = (12a^3 + 8a^2)\pi$$

OR $12a^3\pi + 8a^2\pi$

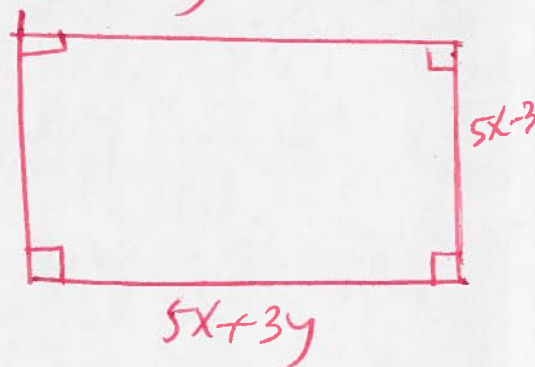
468 Find the area of a rectangle with length = $5x + 3y$ and width = $5x - 3y$

$$A = LW$$

$$A = (5x + 3y)(5x - 3y)$$

$$A = 25x^2 - 15xy + 15xy - 9y^2$$

$$= 25x^2 - 9y^2$$



(469) If $a^2 + N + 8b^2 = (a+b)(a+8b)$ then $N =$
 $= a^2 + 8ab + ab + 8b^2$
 $= a^2 + 8ab + 1ab + 8b^2$
 $a^2 + N + 8b^2 = a^2 + 9ab + 8b^2$
 $N = 9ab$

30.

(470) $6x^3y^2z^7 - 15x^4y^4z^2$ Factor GCF
 $3x^1y^2z^2(2x^2z^5 - 5y^2) =$

(471) $\frac{25x^2}{64} - \frac{9}{121} =$ Factor $a^2 - b^2 = (a+b)(a-b)$
 $\left(\frac{5x}{8}\right)^2 - \left(\frac{3}{11}\right)^2 =$
 $\left(\frac{5x}{8} + \frac{3}{11}\right)\left(\frac{5x}{8} - \frac{3}{11}\right) =$

(472) $2x^2 + 9x - 18 =$ Factor $(2x-3)(x+6) =$
 $(2x-3)(x+6) =$

2.1 18.1
9.2
3.6

(473) $2x^2 - 32y^2 =$ Factor $a^2 - b^2 = (a+b)(a-b) =$
 $2(x^2 - 16y^2) =$ GCF
 $2((x)^2 - (4y)^2) =$
 $2(x+4y)(x-4y) =$

16.1
2.8
4.4

$$(474) \quad x^2 + 2x - 8 = 0$$

$$(x - 2)(x + 4) = 0$$

$$x - 2 = 0 \quad \text{OR} \quad x + 4 = 0$$

$$x - 2 + 2 = 0 + 2 \quad \text{OR} \quad x + 4 - 4 = 0 - 4$$

$$x = 2 \quad \text{OR} \quad x = -4$$

$$\begin{matrix} 8.1 \\ 2.4 \end{matrix}$$

$$\{2, -4\}$$

$$13!$$

$$(475) \quad (x-1)^2 + 1 = 5$$

$$(x-1)^2 + 1 - 1 = 5 - 1$$

$$(x-1)^2 = 4$$

$$\sqrt{(x-1)^2} = \pm \sqrt{4}$$

$$x-1 = \pm 2$$

$$x-1 = -2 \quad \text{OR} \quad x-1 = 2$$

$$x-1+1 = -2+1 \quad \text{OR} \quad x-1+1 = 2+1$$

$$x = -1$$

$$\text{OR} \quad x = 3$$

$$\{-1, 3\}$$

$$(476) \quad (x-2)^2 + 2 = 9$$

$$(x-2)^2 + x - x = 9 - 2$$

$$(x-2)^2 = 7$$

$$\sqrt{(x-2)^2} = \pm \sqrt{7}$$

$$x-2 = \pm \sqrt{7}$$

$$x - x + x = 2 \pm \sqrt{7}$$

$$x = 2 \pm \sqrt{7}$$

$$x = 2 + \sqrt{7} \quad \text{OR}$$

$$x = 2 - \sqrt{7}$$

$$(477) \sqrt{2-x} = 4$$

$$(\sqrt{2-x})^2 = (4)^2$$

$$2-x = (4)(4)$$

$$2-x = 16$$

$$2-x-x = 16-2$$

$$-x = 14$$

$$\frac{-x}{-1} = \frac{14}{-1}$$

$$x = -14$$

ck $\sqrt{2-x} = 4$?
 $\sqrt{2-(-14)} = 4$?
 $\sqrt{2+14} = 4$?
 $\sqrt{16} = 4$?
 $4 = 4$ ✓

(32)

$$(478) f(x) = 80 - 16x^2 + 64x$$
$$f(x) = -16x^2 + 64x + 80$$

$$a = -16, b = 64, c = 80$$

$$\text{Max} = \text{Vertex} = \left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right)$$

$$= \left(-\frac{(64)}{2(-16)}, f\left(-\frac{(64)}{2(-16)}\right)\right)$$

$$= \left(-\frac{64}{-32}, f\left(-\frac{64}{-32}\right)\right)$$

$$= (2, f(2))$$

$$= (2, -16(2)^2 + 64(2) + 80)$$

$$= (2, -16(4) + 64(2) + 80)$$

$$= (2, -64 + 128 + 80)$$

$$= (2, -64 + 128 + 80)$$

find Max

$$(2, 64 + 80)$$

$$(2, 144)$$

the MAX

479 $3x + 2y = 5$
 $5x + 3y = 8$

$$\begin{array}{r} (3x + 2y = 5)(-3) \\ (5x + 3y = 8)(2) \\ \hline \end{array}$$

$$-9x - 6y = -15$$

$$10x + 6y = 16$$

$$x + 0 = 1$$

$$x = 1$$

$$(x, y) = (1, 1)$$

By elimination

Subst

$$3x + 2y = 5$$

$$3(1) + 2y = 5$$

$$3 + 2y = 5$$

$$3 + 2y - 3 = 5 - 3$$

$$2y = 2$$

$$\frac{2y}{2} = \frac{2}{2}$$

$$y = 1$$

33.

480. $\left(\frac{2x}{3y}\right)\left(\frac{27y}{8x^2}\right)$ simplifying

$$\left(\frac{\cancel{2}x}{\cancel{3}y}\right)\left(\frac{\cancel{3}\cdot\cancel{3}\cdot\cancel{3}y}{2\cdot\cancel{4}\cdot\cancel{x}\cdot\cancel{x}}\right) =$$

$$\frac{9}{4x} =$$

(481.) $\frac{2xy+y}{y} = \text{simplify}$

$$\frac{2xy}{y} + \frac{y}{y} =$$

$$2x + 1 =$$

134.

(482) $(5x^2y^7)^3 = \text{simplify}$

$$(5^1 x^2 y^7)^3 =$$

$$5^{1(3)} x^{2(3)} y^{7(3)} =$$

$$5^3 x^6 y^{21} =$$

$$(5)(5)(5) x^6 y^{21} =$$

$$125 x^6 y^{21} =$$