1. $(-17-37) \div 18-25$
2. $3(y-5)=y-15$
3. $3(4x-3)=13x$
4. $\frac{1}{4}-\frac{5}{18}$
5. $\frac{y}{6}=\frac{y}{7}+3$
6. $4.1x-73=2.6x+5$
7. $A=P-PD$, $P=\$939$, $D=5\%$ discount
8. $A=P+PRT$, $P=\$71000$, $R=13.5\%$ interest, $T=2$
9. $7(x-2)-4=-18$
10. $7(4x-3)=28x-21$
11. $\frac{x}{5}+4=\frac{x}{5}$
12. $-6x+4 \geq 2(5-2x)$
13. $y=-\frac{1}{2}x+2$ graph
14. $3x-6y=6$ graph
15. $(3,8), (2,4)$ find slope
16. $7x+y=2$ find slope
17. $7x-2y=14$ find slope
18. $m=2$, $(-3,12)$ find equation of line
19. $m=-6$, $(0,8)$ y-intercept find equation of line
20. $3x-y=1$ is $(2,5)$ a solution
    $x+3y=17$
21. $6x-y=9$ solve
    $5x+y=13$
22. $P(x)=x^2+x+1$ find $P(8)$
23. $(3y^2+8y-7)-(-4y+2)$
24. $(-9y^2-5y)+(3y^2+2y-2)$
25. $(4y+7)^2$

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26. $(x-5)(x^2-4x+3)$
27. $(x+4)(x^3-6x+7)$
28. $(7C+D)(7C-D)$
29. 3^{-3}
30. $\left(\frac{x^{-1}y^3}{x^3y^7}\right)^2$
31. $(6x^2+13x+11) \div (x+1)$ use synthetic division
32. x^2-x-30 factor
33. $36x^2-169y^2$ factor
34. $(2x+9)(6x-7)=0$ solve
35. $x^2-13x+40=0$ solve

① $(-17-37) \div 18-25=$

$(-54) \div 18-25=$

$-3-25=$

$-28=$

② $3(y-5)=y-15$

$3y-15=y-15$

$3y-15+15=y-15+15$

$3y=y$

$3y-1y=1y-1y$

$2y=0$

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

$y=0$

③ $3(4x-3)=13x$

$12x-9=13x$

$12x-9+9=13x+9$

$12x=13x+9$

$12x-13x=13x+9-13x$

$-1x=9$

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

$x=-9$

(4) $\frac{1}{4} - \frac{5}{18} =$

$\frac{1}{4}\left(\frac{9}{9}\right) - \frac{5}{18}\left(\frac{2}{2}\right) =$

$\frac{9}{36} - \frac{10}{36} =$

$\frac{9-10}{36} =$

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

Primes: 2, 3, 5, 7, 11, ...

2 | 4
2 | 2
1

2 | 18
3 | 9
3 | 3
1

$4 = 2 \cdot 2$

$18 = 2 \cdot 3 \cdot 3$

$LCD = 2 \cdot 2 \cdot 3 \cdot 3$

$= 36$

(5) $\frac{y}{6} = \frac{y}{7} + 3$

$LCD = 42$ Malt

$\frac{y}{6}(42) = \frac{y}{7}(42) + \frac{3}{1}(42)$

$y(7) = y(6) + 3(42)$

$7y = 6y + 126$

$7y - 6y = 6y + 126 - 6y$

$1y = 126$

$y = 126$

6. $4.1x - 73 = 2.6x + 5$

$4.1x - 73 + 73 = 2.6x + 5 + 73$

$4.1x = 2.6x + 78$

$4.1x - 2.6x = 2.6x + 78 - 2.6x$

$1.5x = 78$

$\frac{1.5x}{1.5} = \frac{78}{1.5}$

$x = 52$

7. $A = P - PD$, $P = \$939$, $D = 5\% = .05$

$A = \$939 - \$939(.05)$

$A = \$939 - 46.95$

$A = \$892.05$

Discount

8. $A = P + PRT$, $P = \$71000$, $R = 13.5\% = .135$, $T = 2$

$A = \$71000 + \$71000(.135)(2)$

$A = \$71000 + \$71000(.27)$

$A = \$71000 + \$19170$

$A = \$90,170$

ADD Interest

9. $7(x-2)-4=-18$

$7x-14-4=-18$

$7x-18=-18$

$7x-18+18=-18+18$

$7x=0$

$\frac{7x}{7}=\frac{0}{7}$

$x=0$

10. $7(4x-3)=28x-21$

$28x-21=28x-21$

$28x-21+21=28x-21+21$

$28x=28x$

$28x-28x=28x-28x$

$0=0$

the solution is all real numbers

11. $\frac{x}{5} + 4 = \frac{x}{5}$ LCD = 5

$\frac{x}{5}(5) + \frac{4}{1}(5) = \frac{x}{5}(5)$

$x(1) + 4(5) = x(1)$

$1x + 20 = 1x$

$1x + 20 - 20 = 1x - 20$

$1x = 1x - 20$

$1x - 1x = 1x - 20 - 1x$

$0 \neq -20$

There is no solution

12. $-6x + 4 \geq 2(5 - 2x)$

$-6x + 4 \geq 10 - 4x$

$-6x + 4 - 4 \geq 10 - 4x - 4$

$-6x \geq -4x + 6$

$-6x + 4x \geq -4x + 6 + 4x$

$-2x \geq 6$

Divide by a negative

Turn the alligator around

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

$x \leq -3$

$(-\infty, -3]$

(13) $y = -\frac{1}{2}x + 2$ graph

x	y
0	2
2	1

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

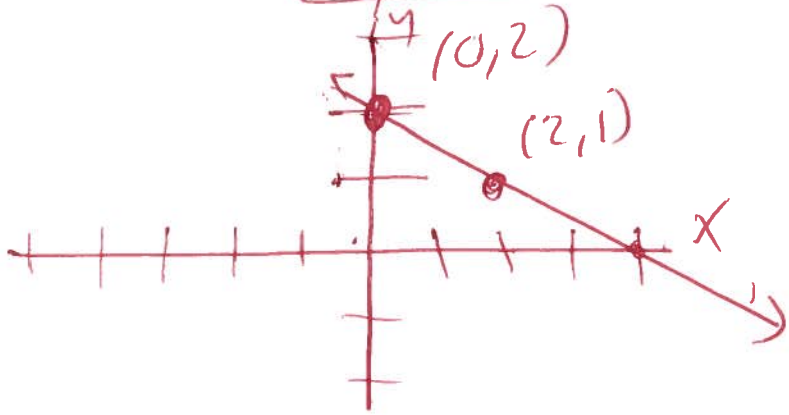
$y = 0 + 2$

$y = 2$

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

$y = -1 + 2$

$y = 1$



(14) $3x - 6y = 6$ graph

$3x - 6y - 3x = 6 - 3x$

$-6y = 6 - 3x$

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

$y = -1 + \frac{3}{6}x$

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

$y = -1 + \frac{1}{2}x$

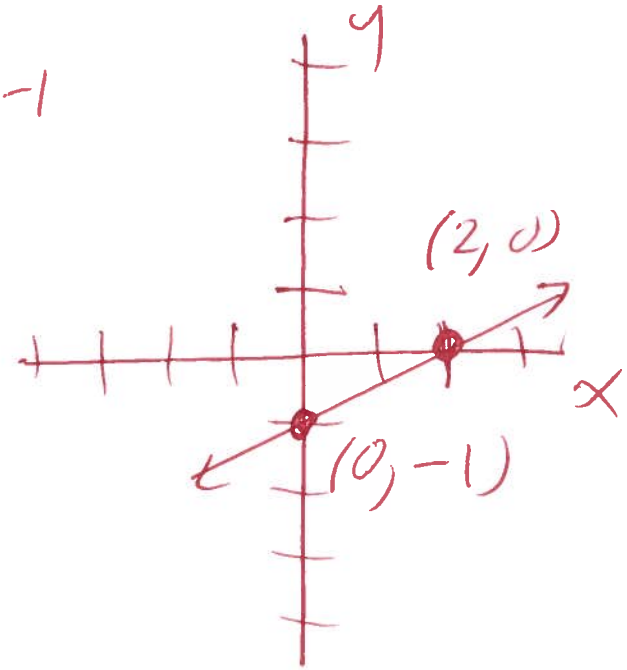
$y = \frac{1}{2}x - 1$

x	y
0	-1
2	0

$y = \frac{1}{2}(2) - 1$

$y = 1 - 1$

$y = 0$



$y = \frac{1}{2}(0) - 1$

$y = 0 - 1$

$y = -1$

15. (3,8) and (2,4) find slope

$x_1\ y_1 \quad x_2\ y_2$

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

Slope formula

$$m = \frac{(8) - (4)}{(3) - (2)}$$

$$m = \frac{8-4}{3-2}$$

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

$$m = 4$$

16. $7x + y = 2$ find slope

$$7x + y - 7x = 2 - 7x$$

$$y = 2 - 7x$$

$$y = -7x + 2$$

form

$y = mx + b$

Slope = m

y-intercept

Slope = m = -7

y-intercept

17. $7x - 2y = 14$ find slope

$7x - 2y - 7x = 14 - 7x$

$-2y = 14 - 7x$

$\frac{-2y}{-2} = \frac{14}{-2} - \frac{7x}{-2}$

$y = -7 + \frac{7}{2}x$

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

$y = mx + b$ form

Slope $= m = \frac{7}{2}$ y-intercept

m: Slope; b: y-intercept

18. $m = 2$, $(-3, 12)$ x_1 y_1 find the equation of the line

$y - y_1 = m(x - x_1)$ ← Point Slope formula

$y - (12) = 2(x - (-3))$

$y - 12 = 2(x + 3)$

$y - 12 = 2x + 6$

$y - 12 + 12 = 2x + 6 + 12$

$y = 2x + 18$

(19) $m=-6$, $(0, 8)$ y-intercept, find the equation of the line. (x_1, y_1)

$y-y_1=m(x-x_1)$ ← Point Slope formula

$y-(8)=-6(x-(0))$

$y-8=-6(x-0)$

$y-8=-6(x)$

$y-8=-6x$

$y-8+8=-6x+8$

$y=-6x+8$

(20) $3x-y=1$ is $(2, 5)$ a solution
$x+3y=17$ (x, y)

$3(2)-(5)=1$ Subst Ck

$6-5=1$

$1=1$ ✓

$(2)+3(5)=17$ Subst Ck

$2+15=17$

$17=17$ ✓

Yes $(2, 5)$ is a solution.

21

$6x - y = 9$

$5x + y = 13$

$11x + 0 = 22$

$11x = 22$

$\frac{11x}{11} = \frac{22}{11}$

$x = 2$

Subst

$6x - y = 9$

$6(2) - y = 9$

$12 - y = 9$

$12 - y - 12 = 9 - 12$

$-y = -3$

$\frac{-1y}{-1} = \frac{-3}{-1}$

$y = 3$

$(x, y) = (2, 3)$

22

$P(x) = x^2 + x + 1$ find $P(8)$

$P(8) = (8)^2 + (8) + 1$

$P(8) = (8)(8) + (8) + 1$

$P(8) = 64 + 8 + 1$

$P(8) = 72 + 1$

$P(8) = 73$

23. $(3y^2+8y-7)-(-4y+2)=$

$3y^2+8y-7+4y-2=$

$3y^2+12y-9=$

24. $(-9y^2-5y)+(3y^2+2y-2)=$

$-9y^2-5y+3y^2+2y-2=$

$-6y^2-3y-2=$

25. $(4y+7)^2=$

$(4y+7)(4y+7)=$

$16y^2+28y+28y+49=$

$16y^2+56y+49=$

26. $(x-5)(x^2-4x+3)=$

$x^3-4x^2+3x-5x^2+20x-15=$

$x^3-9x^2+23x-15=$

27. $(x+4)(x^3-6x+7) =$

$x^4 - 6x^2 + 7x + 4x^3 - 24x + 28 =$

$x^4 + 4x^3 - 6x^2 - 17x + 28 =$

28. $(7c+D)(7c-D) =$

$49c^2 - 7cD + 7cD - D^2 =$

$49c^2 - D^2 =$

29. $3^{-3} =$

$\frac{1}{3^3}$ = rewrite

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

$\frac{1}{27} =$

3. $\left(\frac{x^{-1}y^3}{x^3y^7}\right)^2 =$

$\left(\frac{y^3}{x^1x^3y^7}\right)^2 =$

$\left(\frac{1}{x^{1+3}y^{7-3}}\right)^2 =$

$\left(\frac{1^1}{x^4y^4}\right)^2 =$

$\frac{(1)^2}{x^{4(2)}y^{4(2)}} =$

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

$\frac{(1)(1)}{x^8y^8} =$

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

31. $(6x^2+13x+11) \div (x+1)$

$$\frac{6x^2+13x+11}{x+1} =$$

use synthetic division

$$\begin{array}{r|rrr} -1 & 6 & 13 & 11 \\ & & -6 & -7 \\ \hline & 6 & 7 & 4 \end{array}$$ rem

$$6x+7+\frac{4}{x+1}$$

32. $x^2-x-30 =$ factor

$(x+5)(x-6) =$

Possible
30 · 1
15 · 2
10 · 3
6 · 5

Ck

$(x+5)(x-6) =$ Good

FOIL

$x^2-6x+5x-30 =$

$x^2-1x-30 =$

x^2-x-30 ✓

33. $36x^2 - 169y^2$ Factor

formula $a^2 - b^2 = (a+b)(a-b)$

$(6x)^2 - (13y)^2 =$

$(6x+13y)(6x-13y) =$

34. $(2x+9)(6x-7)=0$ Solve

$2x+9=0$ OR $6x-7=0$

$2x+9-9=0-9$ OR $6x-7+7=0+7$

$2x=-9$ OR $6x=7$

$\frac{2x}{2} = \frac{-9}{2}$ OR $\frac{6x}{6} = \frac{7}{6}$

$x = -\frac{9}{2}$ OR $x = \frac{7}{6}$

$\left\{-\frac{9}{2}, \frac{7}{6}\right\}$

35 $x^2 - 13x + 40 = 0$

Solve

Possible

40.1

20.2

10.4

8.5

$(x-5)(x-8) = 0$

Set $x-5=0$ OR $x-8=0$

$x-8+5=0+5$ OR $x-8+8=0+8$

$x=5$ OR $x=8$

Ck

$(x-5)(x-8) =$

$x^2-8x-5x+40 =$

$x^2-13x+40 =$

$\{5, 8\}$