M04100445tepd

MATH 043 Final Exam Review

Simplify

1. $\frac{19+7}{3^2-4} =$

$\frac{19+7}{(3)(3)-4} =$

$\frac{19+7}{9-4} =$

$\frac{200}{5} =$

$40 =$

Solve

2. $F+1=-2$

$F+1-1=-2-1$

$F=-3$

Simplify

3. $2(4x+2)+3(x+4) =$

$8x+4+3x+12 =$

$11x+16 =$

4. $5x+4=49$

$5x+4-4=49-4$

$5x=45$

$\frac{5x}{5}=\frac{45}{5}$

$x=9$

5. Solve

$2(5x-2) = 8x$

$10x - 4 = 8x$

$10x - 4 + 4 = 8x + 4$

$10x = 8x + 4$

$10x - 8x = 8x + 4 - 8x$

$2x = 4$

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

$x = 2$

6. Solve

$5x - 6 = 2x - 30$

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

$5x = 2x - 24$

$5x - 2x = 2x - 24 - 2x$

$3x = -24$

$\frac{3x}{3} = \frac{-24}{3}$

$x = -8$

7. Solve

$\frac{x}{5} = \frac{x}{6} + \frac{2}{5}$

mult by LCD = 30

$\frac{x}{5}(30) = \frac{x}{6}(30) + \frac{2}{5}(30)$

$x(6) = x(5) + 2(6)$

$6x = 5x + 12$

$6x - 5x = 5x + 12 - 5x$

$1x = 12$

$x = 12$

8. Solve

$1.1x + 4.3 = 0.7x + 1.14$

$1.1x + 4.3 - 4.3 = 0.7x + 1.14 - 4.3$

$1.1x = 0.7x - 3.16$

$1.1x - 0.7x = 0.7x - 3.16 - 0.7x$

$.4x = -3.16$

$\frac{.4x}{.4} = \frac{-3.16}{.4}$

$x = -7.9$

3.

9. Find median

4, 6, 25, 23, 43, 47

4, 6, 23, 25, 43, 47 rewrite

$\frac{23+25}{2} =$

$\frac{48}{2} =$

24 = median

10. Solve

19 is 4% of what number?

$\frac{4}{100} = \frac{19}{x}$

$4(x) = 100(19)$ cross mult

$4x = 1900$

$\frac{4x}{4} = \frac{1900}{4}$

$x = 475$

$4\overline{)1900}$ → 475

$-(16)$

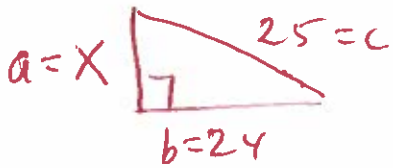
30

$-(28)$

20

(11.) Solve

(4.)



$a^2+b^2=c^2$

$(X)^2+(24)^2=(25)^2$

$X^2+(24)(24)=(25)(25)$

$X^2+576=625$

$X^2+576-576=625-576$

$X^2=49$

$\sqrt{X^2}=\sqrt{49}$

$X=7$

(12.) A bag contains 7 red marbles, 2 blue marbles, and 1 green marble. What is the probability of choosing a marble that is not blue when one marble is drawn from the bag?

$\frac{want}{all}=$

$\frac{not\ blue}{all}=$

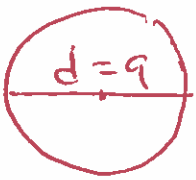
$\frac{7+1}{7+2+1}=$

$\frac{8}{10}=$

$\frac{2(4)}{2(5)}=$

$\frac{4}{5}=$

13 Find area



use $\pi = 3.14$

$r = \frac{d}{2} = \frac{9}{2} = 4.5$

$A = \pi r^2$

$A = 3.14(4.5)^2$

$A = 3.14(4.5)(4.5)$

$A = 3.14(20.25)$

$A = 63.585$

14 Solve

$8x - (4x - 1) = 2$

$8x - 1(4x - 1) = 2$

$8x - 4x + 1 = 2$

$4x + 1 = 2$

$4x + 1 - 1 = 2 - 1$

$4x = 1$

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

$x = 1/4$

15 Solve

$\frac{5x}{6} + \frac{4}{3} = \frac{2x}{3}$

$\frac{5x}{6}(6) + \frac{4}{3}(6) = \frac{2x}{3}(6)$

$5x(1) + 4(2) = 2x(2)$

$5x + 8 = 4x$

$5x + 8 - 8 = 4x - 8$

$5x = 4x - 8$

$5x - 4x = 4x - 8 - 4x$

$1x = -8$

$x = -8$

16. Solve

$9x+5-9x-5=6x-6x-3$

$0 \neq -3$

no solution

17. Solve

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

$2x+10=2x+10$

$2x+10-10=2x+10-10$

$2x=2x$

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

$0=0$

all real numbers

18. Solve for T

$A=P+PRT$

$A-P=P+PRT-P$

$A-P=PRT$

$\frac{A-P}{PR}=\frac{PRT}{PR}$

$\frac{A-P}{PR}=T$

19. Solve

$21x+9>3(6x+4)$

$21x+9>18x+12$

$21x+9-9>18x+12-9$

$21x>18x+3$

$21x-18x>18x+3-18x$

$3x>3$

$\frac{3x}{3}>\frac{3}{3}$

$x>1$

$(1, +\infty)$

(20.) Determine whether the ordered pair is a solution of the given linear equation.

$-2y + 3x = -15 \qquad (5, 0)$

$x \quad y$

$-2(0) + 3(5) = -15$

$0 + 15 = -15$

$15 \neq -15$ NO

(21.) graph $y = 2x + 4$

$y = 2(0) + 4$

$y = 0 + 4$

$y = 4$

$y = 2(1) + 4$

$y = 2 + 4$

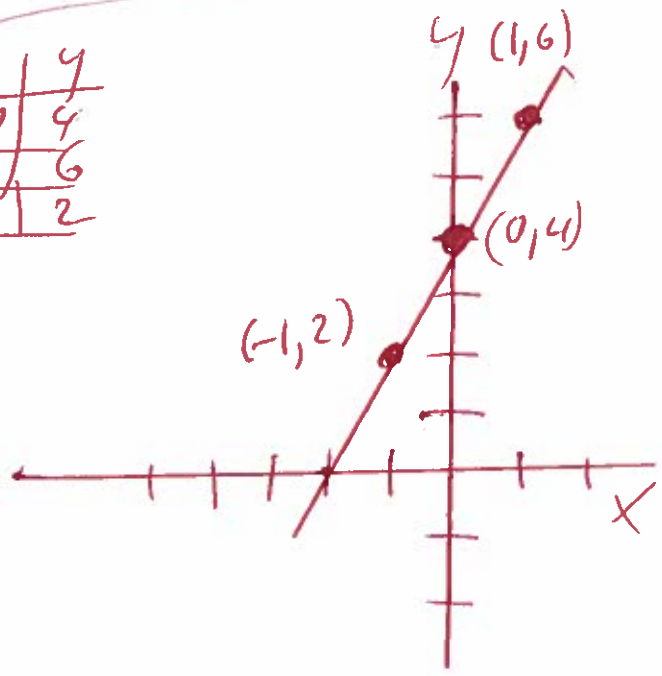
$y = 6$

$y = 2(-1) + 4$

$y = -2 + 4$

$y = 2$

x	y
0	4
1	6
-1	2



(22.) graph $5y - 25x = 10$

$5y - 25x + 25x = 10 + 25x$

$5y = 10 + 25x$

$\frac{5y}{5} = \frac{10}{5} + \frac{25x}{5}$

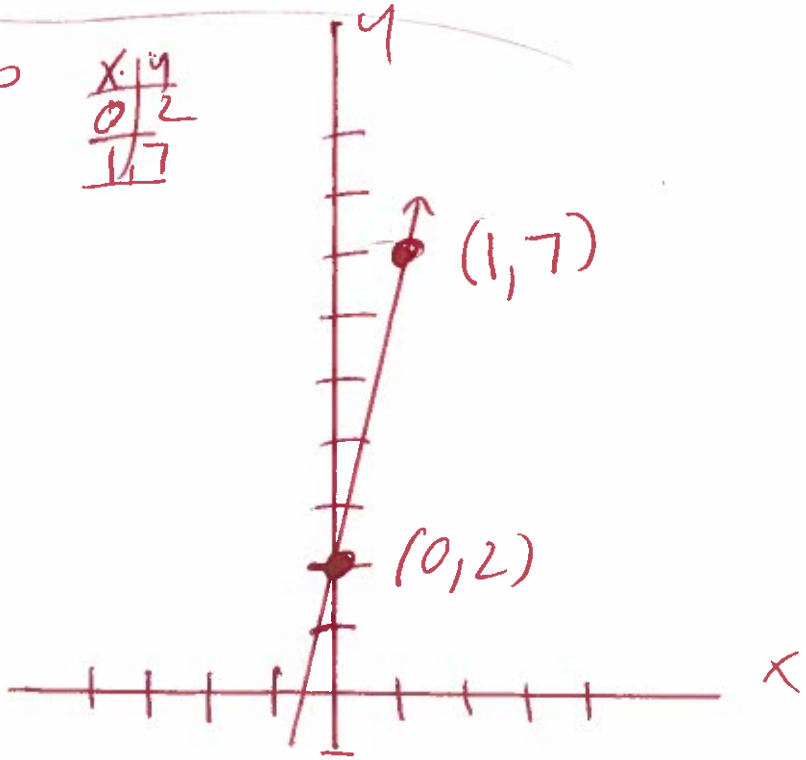
$y = 2 + 5x$

$y = 5x + 2$

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

$y = 5(1) + 2 = 5 + 2 = 7$

x	y
0	2
1	7



(23.) Find the slope of the line through the two points $(8,5)$ $(6,9)$
$x_1\ y_1$ $x_2\ y_2$

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

$$m = \frac{(5)-(9)}{(8)-(6)}$$

$$m = \frac{5-9}{8-6}$$

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

$$m = -2$$

(24.) Find the equation of the line with point slope $(5,2)$ $m = 2 =$ slope
$x_1\ y_1$

$$y - y_1 = m(x - x_1)$$
$$y-(2) = 2(x-(5))$$
$$y-2 = 2(x-5)$$
$$y-2 = 2x-10$$
$$y-2+2 = 2x-10+2$$
$$y = 2x-8$$

(25) Find $f(4)$ when $f(x) = x^2+4x-3$

$$f(4) = (4)^2+4(4)-3$$
$$f(4) = (4)(4)+4(4)-3$$
$$f(4) = 16+16-3$$
$$f(4) = 32-3$$
$$f(4) = 29$$

26. Solve

$-2x+3y=2$

$-3x+5y=2$

$(-2x+3y=2)(-5)$

$(-3x+5y=2)(3)$

Mult

$10x-15y=-10$

$-9x+15y=6$

$1x=-4$

$x=-4$

Subst

$-2x+3y=2$

$-2(-4)+3y=2$

$8+3y=2$

$8+3y-8=2-8$

$3y=-6$

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

$y=-2$

$(x, y)=(-4,-2)$

27. Solve

$x+y=7$

$x+y=4$

$(x+y=7)(-1)$

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

$-1x-1y=-7$

$1x+1y=4$

$0 \neq -3$

No solution

28. Solve

$-2x+2y=-5$

$6x-6y=15$

$(-2x+2y=-5)(6)$

$(6x-6y=15)(2)$

$-12x+12y=-30$

$12x-12y=30$

$0+0=0$

$0=0$ Always

Infinite Number of Solutions

29. Simplify

$(14x+5)-(-13x^2-7x+5)=$

$14x+5+13x^2+7x-5=$

$13x^2+21x=$

30. Multiply

$6x^2(-2x^2+2x+6)=$

$-12x^4+12x^3+36x^2=$

31. Simplify

$(a+8)(a+1)=$

$a^2+1a+8a+8=$

$a^2+9a+8=$

32. Simplify

$(b-5)(b^2+5b+3)=$

$b^3+5b^2+3b-5b^2-25b-15=$

$b^3-22b-15=$

33. Simplify

$(6x-1)(x^2-4x+1)=$

$6x^3-24x^2+6x-1x^2+4x-1=$

$6x^3-25x^2+10x-1=$

34. Simplify

$(3a-7)^2=$

$(3a-7)(3a-7)=$

$9a^2-21a-21a+49=$

$9a^2-42a+49=$

35. Simplify

$(x+11)(x-11) =$

$x^2 - 11x + 11x - 121 =$

$x^2 - 121 =$

36. Simplify

$$\frac{2^{-7} x^{-5} y^3}{2^{-4} x^{-8} y^6} =$$

$$\frac{2^4 x^8 y^3}{2^7 x^5 y^6} =$$

$$\frac{x^{8-5}}{2^{7-4} y^{6-3}} =$$

$$\frac{x^3}{2^3 y^3} =$$

$$\frac{x^3}{2 \cdot 2 \cdot 2 \cdot y^3} =$$

$$\frac{x^3}{8 y^3} =$$

37. $\frac{5m^2+5m-10}{m+2}$

use synthetic division

$-2 \mid 5 \quad 5 \quad -10$

$\quad\quad -10 \quad 10$

$5 \quad -5 \quad 0$ rem

$5m-5$ ✓

OR long division (12)

$5m-5$

$m+2 \overline{)\,5m^2+5m-10}$

$-(5m^2+10m)$

$-5m-10$

$-(\pm 5m \mp 10)$

0 rem

38. $\frac{x^2+9x+6}{x+2}$

use synthetic division

$-2 \mid 1 \quad 9 \quad 6$

$\quad\quad -2 \quad -14$

$1 \quad 7 \quad -8$ rem

$x+7+\frac{-8}{x+2}$

OR long division

$x+7+\frac{-8}{x+2}$

$x+2 \overline{)\,x^2+9x+6}$

$-(x^2+2x)$

$7x+6$

$-(7x+14)$

-8 rem

39. factor GCF

$20x^4y+36xy^3=$

$20x^4y^1+36x^1y^3=$

$4x^1y^1(5x^3+9y^2)=$

$4xy(5x^3+9y^2)=$

40 Factor by grouping

$3xy - 9x + 7y - 21 =$

$(3xy - 9x) + (7y - 21) =$

$3x(y-3) + 7(y-3) =$

$(y-3)(3x+7) =$

41. Factor

$x^2 - x - 42 =$

$(x+6)(x-7) =$

42.1
21.2
6.7
14.3
Possible

42. Factor

$u^2 - 3uv - 28v^2 =$

$(u+4v)(u-7v) =$

28.1
14.2
4.7
Possible

43. Factor

$x^2 + 3xy - 18y^2 =$

$(x-3y)(x+6y) =$

18.1
9.2
6.3
Possib

44. Factor

$z^2 - 121 =$

$(z)^2 - (11)^2 =$

$(z+11)(z-11)$

Formula

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