

$$① \quad 0 > -2$$

math04/0137 AleksStep

06-28-30

done

done

math04/0137 AleksStep

$$② \quad |-1| =$$

$$(1) =$$

$$1 =$$

$$③ \quad 2x - y, \quad x = 2, \quad y = -3$$

$$2(2) - (-3) =$$

$$4 + 3 =$$

$$7 =$$

$$④ \quad -7^2 =$$

$$-(7)(7) =$$

$$-(49) =$$

$$-49 =$$

$$⑤ \quad \frac{8}{0} =$$

undefined

6

$$(-2)^2 =$$

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

$$(4) =$$

$$4 =$$

7

$$(-2)^3 =$$

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

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

$$(-8) =$$

$$-8 =$$

8

$$(-12) + 8 \div 4 =$$

$$(-12) + 2 =$$

$$-12 + 2 =$$

$$-10 =$$

9

$$5 + 3 \cdot 2 - 15 =$$

$$5 + 6 - 15 =$$

$$11 - 15 =$$

$$-4 =$$

$$10) \quad 6(-9) - (-12) =$$

$$-54 + 12 =$$

$$\underline{-42 =}$$

$$11) \quad |2 - 38| \div 3 =$$

$$|-36| \div 3 =$$

$$(36) \div 3 =$$

$$\underline{12 =}$$

$$12) \quad (-17 - 55) \div 18 - 27 =$$

$$(-72) \div 18 - 27 =$$

$$-4 - 27 =$$

$$\underline{-31 =}$$

$$13) \quad 7(-10) \div [4(-7) - 9(-3)] =$$

$$7(-10) \div [-28 + 27] =$$

$$7(-10) \div [-1] =$$

$$-70 \div [-1] =$$

$$\underline{70 =}$$

14.

$$3x - 2y - 6z$$

$$x = -2, y = 3, z = -1$$

$$3(-2) - 2(3) - 6(-1) =$$

$$-6 - 6 + 6 =$$

$$-12 + 6 =$$

$$-6 =$$

15.

$$x^2 - y$$

$$x = -4, y = 6$$

$$(-4)^2 - (6) =$$

$$(-4)(-4) - (6) =$$

$$(16) - (6) =$$

$$16 - 6 =$$

$$10 =$$

16.

$$d - 3 = -25$$

$$d - 3 + 3 = -25 + 3$$

$$d = -22$$

17.

$$-2z = 6$$

$$\frac{-2z}{-2} = \frac{6}{-2}$$

$$z = -3$$

$$(18) \quad \frac{n}{8} = -4$$

$$\cancel{8} \left( \frac{n}{\cancel{8}} \right) = \frac{\cancel{8}}{1} \left( \frac{-4}{1} \right)$$

$$n = \frac{-32}{1}$$

$$n = -32$$

(19)

$$-8x = 0$$

$$\frac{-8x}{-8} = \frac{0}{-8}$$

$$x = 0$$

20

$$-5(6p^4 + 5) =$$

$$-30p^4 - 25 =$$

21

$$17y - 22y =$$

$$-5y =$$

22

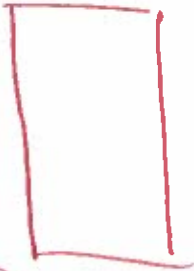
$$6y - 4(y - 2) + 5 =$$

$$6y - 4y + 8 + 5 =$$

$$2y + 13 =$$

23 Find area

8 inches



5y inches

$$A = LW$$

$$A = (5y)(8)$$

$$A = 40y \text{ square inches}$$

24

$$P = 2L + 2W$$

$$L = 19, \quad W = 14$$

$$P = 2(19) + 2(14)$$

$$P = 38 + 28$$

$$P = 66$$

25

$$12w - 16w = 24$$

$$-4w = 24$$

$$\frac{-4w}{-4} = \frac{24}{-4}$$

$$w = -6$$

26

$$18 = t + 5t$$

$$18 = 1t + 5t$$

$$18 = 6t$$

$$\frac{18}{6} = \frac{6t}{6}$$

$$3 = t$$

$$(27) -2x - 2x = 32 - 4$$

$$-4x = 28$$

$$\frac{-4x}{-4} = \frac{28}{-4}$$

$$x = -7$$

(28)

$$2(4x - 3) = 9x$$

$$8x - 6 = 9x$$

$$8x - 6 + 6 = 9x + 6$$

$$8x = 9x + 6$$

$$8x - 9x = 9x + 6 - 9x$$

$$-1x = 6$$

$$\frac{-1x}{-1} = \frac{6}{-1}$$

$$x = -6$$

(29)

$$16y = 5(3y - 4)$$

$$16y = 15y - 20$$

$$16y - 15y = 15y - 20 - 15y$$

$$1y = -20$$

$$y = -20$$

30

$$5(y-3) = 2y-15$$

$$5y - 15 = 2y - 15$$

$$5y - \cancel{15} + \cancel{15} = 2y - \cancel{15} + \cancel{15}$$

$$5y = 2y$$

$$5y - 2y = 2y - 2y$$

$$3y = 0$$

$$\frac{3y}{3} = \frac{0}{3}$$

$$y = 0$$

31

$$-\frac{4}{7} = \frac{5}{8}$$

$$\frac{-1(2)(2)}{(7)} \cdot \frac{(5)}{(2)(2)(2)} =$$

$$\frac{-1(\cancel{2})(\cancel{2})}{(7)} \cdot \frac{(5)}{(\cancel{2})(2)(2)} =$$

$$\frac{-5}{14} =$$

Primos 2, 3, 5

2(4)	2(8)
2(2)	2(4)
1	2(2)
	1



32

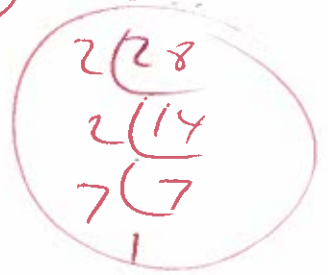
$$\frac{9}{14} \div \frac{17}{28} =$$

$$\frac{9}{14} \cdot \frac{28}{17} =$$

$$\frac{(3)(3)}{(2)(7)} \cdot \frac{(2)(2)(7)}{(17)} =$$

$$\frac{18}{17} =$$

Primes 2, 3, 5, 7



33

$$\frac{1}{24} + \frac{19}{24} =$$

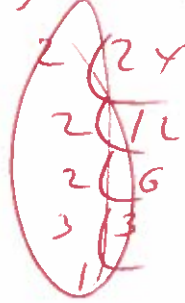
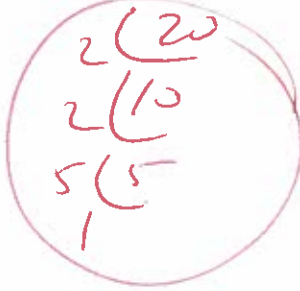
$$\frac{1+19}{24} =$$

$$\frac{20}{24} =$$

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

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

Primes 2, 3, 5, 7



34

$$\frac{1}{2} + \frac{3}{8} =$$

$$\frac{1}{2} \left( \frac{4}{4} \right) + \frac{3}{8} =$$

$$\frac{4}{8} + \frac{3}{8} =$$

$$\frac{4+3}{8} =$$

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

Primes 2, 3, 5, 7...

$$\begin{array}{r} 2 \overline{)8} \\ 2 \overline{)4} \\ 2 \overline{)2} \\ 1 \end{array}$$

$$2 = 2$$

$$8 = 2 \cdot 2 \cdot 2$$

$$\text{LCD} = 2 \cdot 2 \cdot 2$$

$$= 8$$

35

$$\frac{2}{9} - \frac{5}{12} = \text{Primes } 2, 3, 5, 7, \dots$$

$$\frac{2}{9} \left( \frac{4}{4} \right) - \frac{5}{12} \left( \frac{3}{3} \right) =$$

$$\frac{8}{36} - \frac{15}{36} =$$

$$\frac{8-15}{36} =$$

$$\frac{-7}{36} =$$

$$\begin{array}{r} 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)12} \\ 2 \overline{)6} \\ 3 \overline{)3} \end{array}$$

$$9 = 3 \cdot 3$$

$$12 = 2 \cdot 2 \cdot 3$$

$$\text{LCD} = 2 \cdot 2 \cdot 3 \cdot 3$$

$$= 36$$

$$\textcircled{36} \quad \frac{\frac{4}{5}}{\frac{4}{9}} =$$

$$\frac{\cancel{4}}{5} \cdot \frac{9}{\cancel{4}} =$$

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

$$\textcircled{37} \quad -16 = \frac{4}{11}x$$

$$\frac{11}{4} \left( \frac{-16}{1} \right) = \frac{\cancel{11}}{4} \left( \frac{\cancel{4}x}{\cancel{11}} \right)$$

$$\frac{\cancel{11}}{\cancel{(2)(2)}} \left( \frac{-1(\cancel{2})(\cancel{2})(2)(2)}{1} \right) = x$$

$$\frac{-44}{1} =$$

$$-44 =$$

$$\textcircled{38} \quad \frac{y}{5} + 2 = \frac{y}{3} + 8$$

$$\textcircled{\text{LCD} = 15}$$

$$\frac{y}{5}(15) + 2(15) = \frac{y}{3}(15) + \frac{8}{1}(15)$$

$$y(3) + 2(15) = y(5) + 8(15)$$

$$3y + 30 = 5y + 120$$

$$3y + \cancel{30} - \cancel{30} = 5y + (120 - 30)$$

$$3y = 5y + 90$$

$$3y - 5y = 5y + 90 - 5y$$

$$-2y = 90$$

$$\frac{-2y}{-2} = \frac{90}{-2}$$

$$y = -45$$

39.

$$-5.222 \times 1000 =$$

$-5222. =$  move decimal right 3 times

40

$$\frac{61.849}{100} =$$

$0.61849 =$  move decimal left 2 times

41

$$2.2x - 37 = 1.4x + 7$$

$$2.2x - 37 + 37 = 1.4x + 7 + 37$$

$$2.2x = 1.4x + 44$$

$$2.2x - 1.4x = 1.4x + 44 - 1.4x$$

$$.8x = 44$$

$$\frac{.8x}{.8} = \frac{44}{.8}$$

$$x = 55$$

42

$$\frac{7}{8} = \frac{x}{16}$$

$$7(16) = 8(x) \quad \text{cross mult}$$

$$112 = 8x$$

$$\frac{112}{8} = \frac{8x}{8}$$

$$14 = x$$

43  $\frac{14}{70} = \frac{21}{x}$

$$14(x) = 70(21)$$

$$14x = 1470$$

$$\frac{14x}{14} = \frac{1470}{14}$$

$$x = 105$$

44 Write the percent as a decimal  
 $72.3\% =$

$$0.723 =$$

45 Write the decimal as a percent  
 $0.22 =$

$$22\%$$

46 Write the fraction as a percent.

$$\frac{9}{20} = \frac{x}{100}$$

$$9(100) = 20(x)$$

$$900 = 20x$$

$$\frac{900}{20} = \frac{20x}{20}$$

$$45 = x$$

$$45\%$$

OR

47

40% written as a decimal

0.40

40% written as a fraction (simplified)

$$\frac{40}{100} =$$

Prime 2, 3, 5, 7, ...

$2 \overline{)40}$	$2 \overline{)100}$
$2 \overline{)20}$	$2 \overline{)50}$
$2 \overline{)10}$	$5 \overline{)25}$
$5 \overline{)5}$	$5 \overline{)5}$
1	1

$(2)(2)(2)(5)$	
$(2)(2)(5)(5)$	$=$

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

48

$$A = P - PD$$

$$P = \$810, D = 5\% = .05$$

$$A = \$810 - \$810(.05)$$

$$A = \$810 - \$40.50 \leftarrow \text{discount}$$

$$A = \$769.50 \leftarrow \text{Sale Price}$$

49

$$A = P + PRT$$

$$P = \$58,000, R = 7.5\% = .075$$

$$T = 8$$

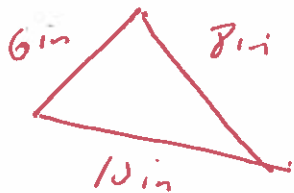
$$A = \$58,000 + \$58,000(.075)(8)$$

$$A = \$58,000 + \$34,800$$

$$A = \$58,000 + \$34,800 \leftarrow \text{Interest}$$

$$A = \$92,800 \leftarrow \text{Total amount paid}$$

50 find perimeter



$$P = s_1 + s_2 + s_3$$

$$P = (6) + (8) + (10)$$

$$P = 6 + 8 + 10$$

$$P = 14 + 10$$

$$P = 24 \text{ inches}$$

51 find area

$$A = \pi r^2$$

$$A = \pi (13.5)^2$$

$$A = \pi (182.25)$$

$$A = 182.25\pi \text{ Square inches}$$

OR

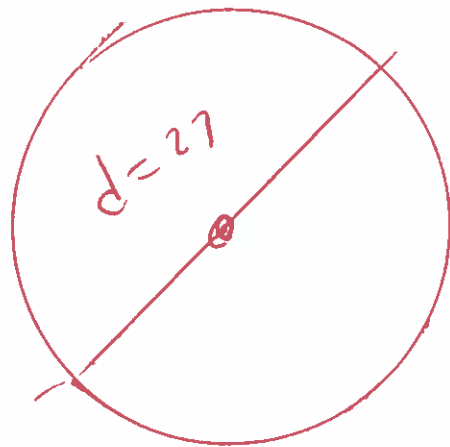
$$A = \pi r^2 \quad \pi = 3.14, \quad r = 13.5$$

$$A = 3.14 (13.5)^2$$

$$A = 3.14 (13.5)(13.5)$$

$$A = 3.14 (182.25)$$

$$A = 572.265 \text{ Square inches}$$



$$r = \frac{1}{2}d = \frac{1}{2}(27) = \frac{27}{2}$$

$$r = 13.5$$

$$\begin{array}{r} 13\frac{1}{2} \\ 2 \overline{) 27} \\ \underline{(2)} \phantom{0} \\ 7 \\ \underline{-(6)} \\ 1 \end{array}$$

52

$$-7(x-8)+8=64$$

$$-7x+56+8=64$$

$$-7x+64=64$$

$$-7x+64-64=64-64$$

$$-7x=0$$

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

$$x=0$$

53

$$4(5x+7)=20x+28$$

$$20x+28=20x+28$$

$$20x+28-28=20x+28-28$$

$$20x=20x$$

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

$$0=0$$

The solution is all real numbers.

54

$$4x+y=10$$

$$y=$$

$$4x+y-4x=10-4x$$

$$y=10-4x$$

OR

$$y=-4x+10$$



$$55. A = B + Bcd \quad (c =)$$

$$A - B = B + Bcd - B$$

$$A - B = Bcd$$

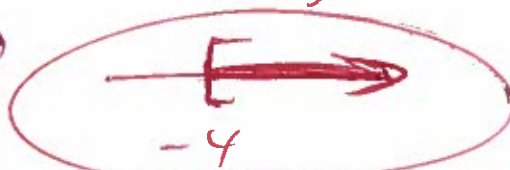
$$\frac{A - B}{Bd} = \frac{Bcd}{Bd}$$

$$\frac{A - B}{Bd} = c$$

$$56. -7x \leq 28$$

$$\frac{-7x}{-7} \geq \frac{28}{-7} \quad \text{divide by a negative and turn the alligator around}$$

$$x \geq -4$$



$$[-4, \infty)$$

$$57. -10x + 6 \geq 6(3 - x)$$

$$-10x + 6 \geq 18 - 6x$$

$$-10x + \cancel{6} - 6 \geq 18 - 6x - 6$$

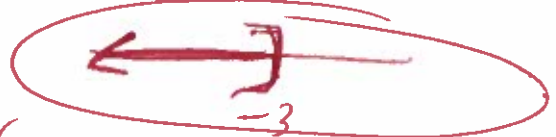
$$-10x \geq -6x + 12$$

$$-10x + 6x \geq -6x + 12 + 6x$$

$$-4x \geq 12$$

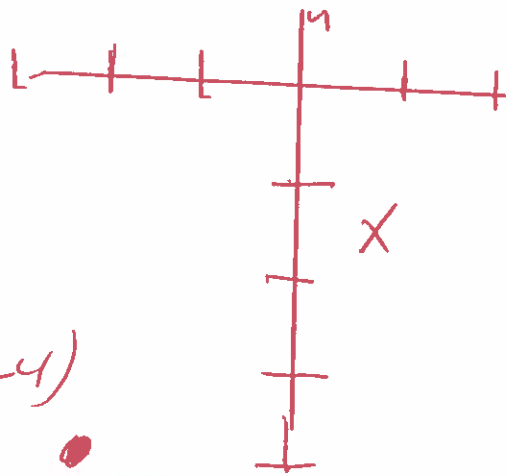
$$\frac{-4x}{-4} \leq \frac{12}{-4} \quad \text{divide by a negative and turn the alligator around}$$

$$x \leq -3$$



$$(-\infty, -3]$$

58.  $(-2, -4)$  graph



$(-2, -4)$

59.  $y = -2x + 8$  graph

$$y = -2(0) + 8$$

$$y = 0 + 8$$

$$y = 8$$

$$y = -2(1) + 8$$

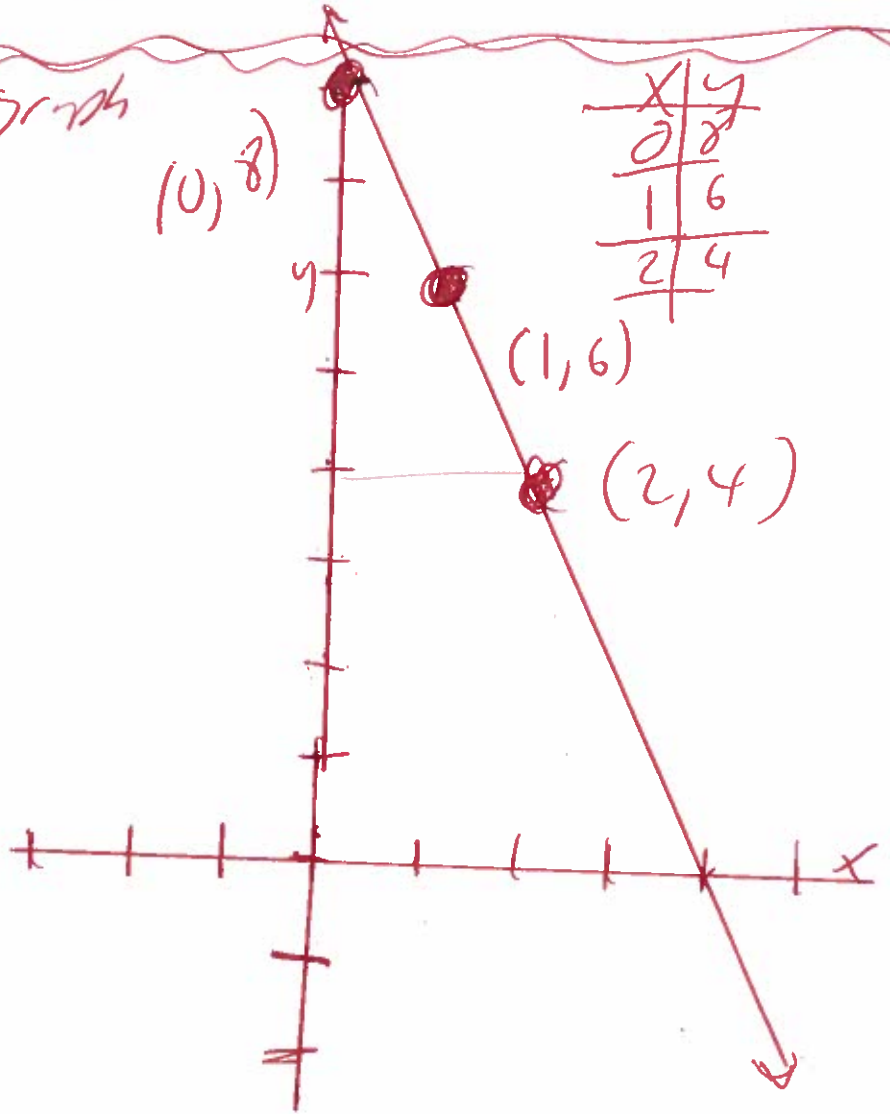
$$y = -2 + 8$$

$$y = 6$$

$$y = -2(2) + 8$$

$$y = -4 + 8$$

$$y = 4$$



60.  $y = 9$  graph

$$y = 0x + 9$$

$$y = 0(0) + 9$$

$$y = 0 + 9$$

$$y = 9$$

$$y = 0(1) + 9$$

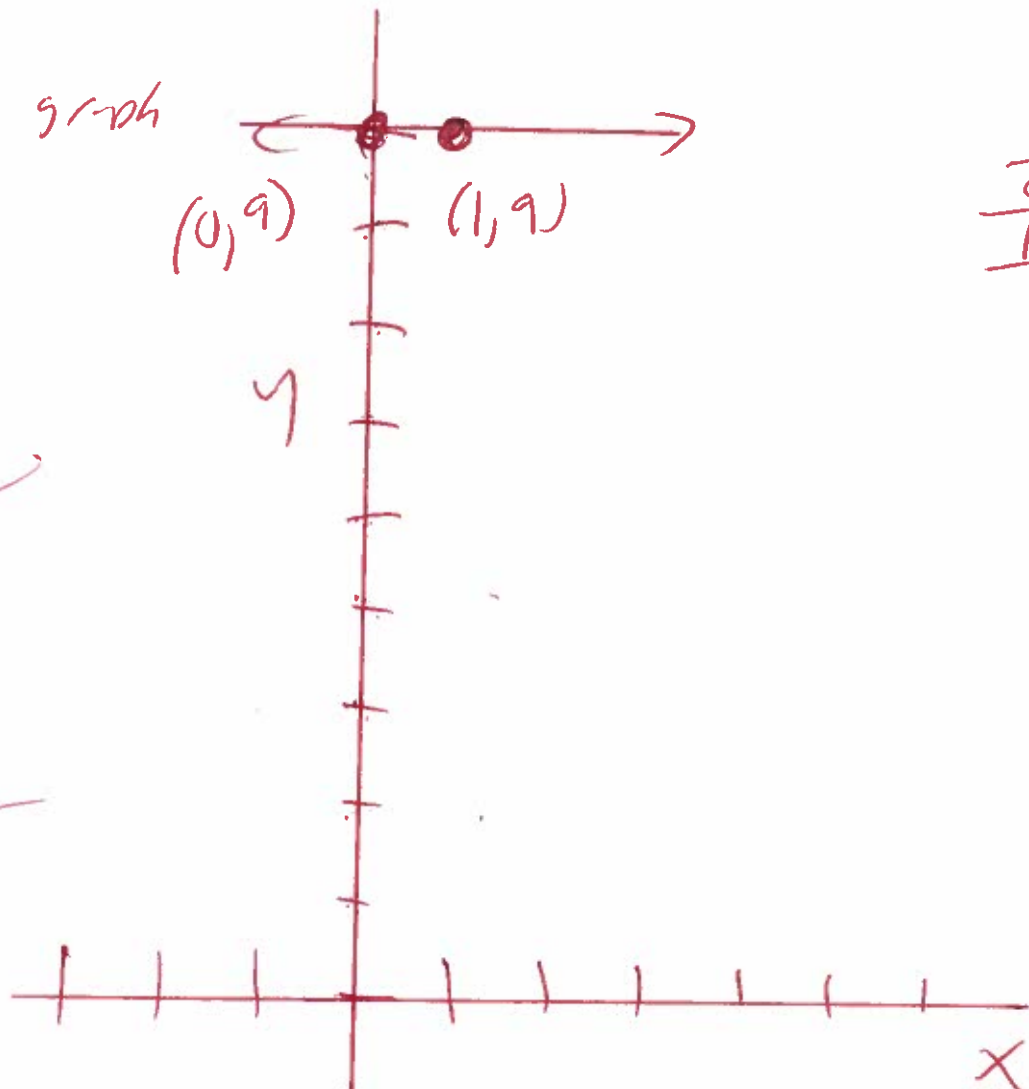
$$y = 0 + 9$$

$$y = 9$$

$(0, 9)$

$(1, 9)$

x	y
0	9
1	9



61.  $y = \frac{1}{2}x + 1$

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

$$y = 0 + 1$$

$$y = 1$$

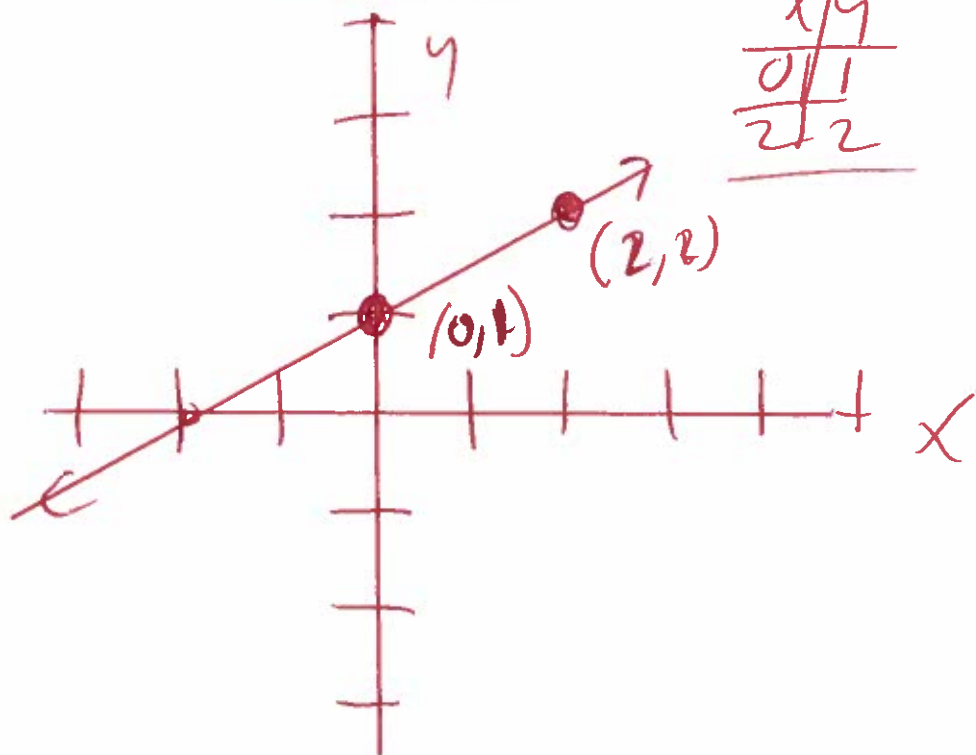
$$y = \frac{1}{2}(2) + 1$$

$$y = 1 + 1$$

$$y = 2$$

y

x	y
0	1
2	2



62

$$5x - 4y = -20$$

find x-intercept let  $y=0$

$$5x - 4(0) = -20$$

$$5x - 0 = -20$$

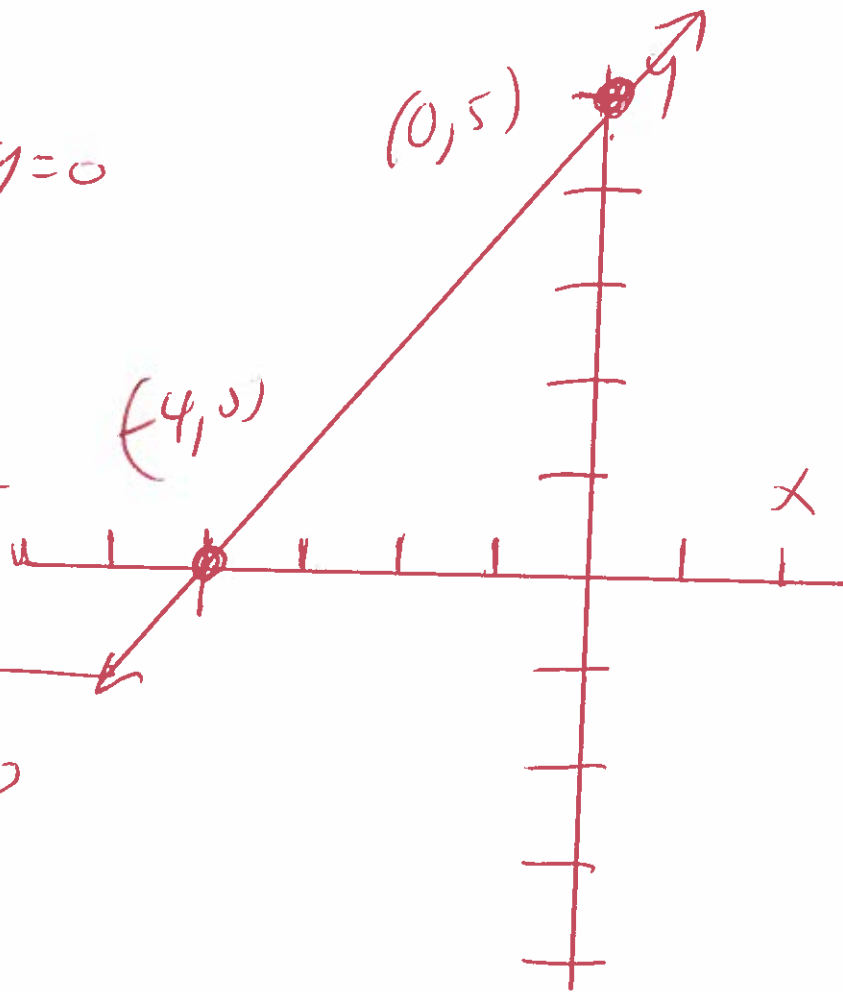
$$5x = -20$$

$$\frac{5x}{5} = \frac{-20}{5}$$

$$x = -4$$

x-intercept  
 $(-4, 0)$

$(0, 5)$



find y-intercept let  $x=0$

$$5(0) - 4y = -20$$

$$0 - 4y = -20$$

$$-4y = -20$$

$$\frac{-4y}{-4} = \frac{-20}{-4}$$

$$y = 5$$

y-intercept  
 $(0, 5)$

63

$(7, 1)$  and  $(6, -6)$

find slope

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

$$x_1 - x_2$$

$$m = \frac{(1) - (-6)}{(7) - (6)}$$

$$(7) - (6)$$

$$m = \frac{1+6}{7-6}$$

$$m = \frac{7}{1}$$

$$m = 7$$

64.  $(-6, -3)$  and  $(3, 4)$  find slope  
 $x_1 \quad y_1 \quad x_2 \quad y_2$

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

$$m = \frac{(-3) - (4)}{(-6) - (3)}$$

$$m = \frac{-3 - 4}{-6 - 3}$$

$$m = \frac{-7}{-9}$$

$$m = \frac{7}{9}$$

65. find the slope  
 $y = 2x - 2$

$$\text{Slope} = m = 2$$

$$y\text{-intercept} = -2$$

for math  
 $y = mx + b$

$$m = \text{slope}$$

$$y\text{-intercept} = b$$

66. find the slope  
 $9x + y = 6$

$$9x + y - 9x = 6 - 9x$$

$$y = 6 - 9x$$

$$y = -9x + 6$$

for math  
 $y = mx + b$

$$\text{Slope} = m$$

$$y\text{-intercept} = b$$

$$y = -9x + 6$$

$$\text{Slope} = m = -9$$

$$y\text{-intercept} = 6$$

(67)  $6x - 7y = 42$  find slope

$$6x - 7y - 6x = 42 - 6x$$

$$-7y = 42 - 6x$$

$$\frac{-7y}{-7} = \frac{42}{-7} - \frac{6x}{-7}$$

$$y = -6 + \frac{6}{7}x$$

form  
 $y = mx + b$   
slope =  $m$  and  $y$ -intercept =  $b$

$$y = \frac{6}{7}x - 6$$

slope =  $m = \frac{6}{7}$  at  $y$ -intercept =  $-6$

(68) find the equation of the line  
slope =  $m = 2$  at point =  $(-6, 9)$   
 $x_1 \quad y_1$

$$y - y_1 = m(x - x_1)$$

$$y - (9) = 2(x - (-6))$$

$$y - 9 = 2(x + 6)$$

$$y - 9 = 2x + 12$$

$$y - 9 + 9 = 2x + 12 + 9$$

$$y = 2x + 21$$

69.  $x^2 - 4x + 2$ ,  $x = -3$

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

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

$$(9) - 4(-3) + 2 =$$

$$9 + 12 + 2 =$$

$$21 + 2 =$$

$$23 =$$

70. determine if each ordered pair is a solution

$$2x - y = 3$$

$$\begin{pmatrix} 4 \\ 5 \end{pmatrix}$$

$$x + 2y = 14$$

$$2(4) - (5) = 3$$

$$8 - 5 = 3$$

$$3 = 3 \quad \checkmark \text{ YES}$$

**YES**  $(4, 5)$  is a solution

$$(4) + 2(5) = 14$$

$$4 + 10 = 14$$

$$14 = 14 \quad \checkmark \text{ YES}$$

$$2x - y = 3$$

$$\begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

$$x + 2y = 14$$

$$x \quad y$$

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

$$4 - 1 = 3$$

$$3 = 3 \quad \checkmark \text{ YES}$$

**NO**  $(2, 1)$  is not a solution.

$$(2) + 2(1) = 14$$

$$2 + 2 = 14$$

$$4 \neq 14 \quad \text{NO}$$

71.  $x + y = 16$   
 $x = 3y$

---

subst

$(3y) + y = 16$   
 $3y + 1y = 16$   
 $4y = 16$   
 $\frac{4y}{4} = \frac{16}{4}$   
 $y = 4$

→ subst

$x + y = 16$   
 $x + (4) = 16$   
 $x + 4 = 16$   
 $x + 4 - 4 = 16 - 4$   
 $x = 12$   
 $(x, y) = (12, 4)$

72.  $y = 4x + 1$

---

$2y - 4x = 14$

$2(4x + 1) - 4x = 14$   
 $8x + 2 - 4x = 14$   
 $4x + 2 = 14$   
 $4x + 2 - 2 = 14 - 2$   
 $4x = 12$   
 $\frac{4x}{4} = \frac{12}{4}$   
 $x = 3$

→ subst

$y = 4x + 1$   
 $y = 4(3) + 1$   
 $y = 12 + 1$   
 $y = 13$

$(x, y) = (3, 13)$



73

$$2x - y = 5$$

$$3x + y = 15$$

$$\hline 5x + 0 = 20$$

$$5x = 20$$

$$\frac{5x}{5} = \frac{20}{5}$$

$$x = 4$$

Subst

$$2x - y = 5$$

$$2(4) - y = 5$$

$$8 - y = 5$$

$$8 - y - 8 = 5 - 8$$

$$-y = -3$$

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

$$y = 3$$

$$(x, y) = (4, 3)$$

74

$$x + 5y = 15$$

$$4x + 6y = 4$$

$$(x + 5y = 15) \quad (-6) \quad \text{mult}$$

$$(4x + 6y = 4) \quad (5)$$

$$\hline -6x - 30y = -90$$

$$20x + 30y = 20$$

$$\hline 14x + 0 = -70$$

$$14x = -70$$

$$\frac{14x}{14} = \frac{-70}{14}$$

$$x = -5$$

Subst

$$x + 5y = 15$$

$$(-5) + 5y = 15$$

$$-5 + 5y = 15$$

$$-5 + 5y + 5 = 15 + 5$$

$$5y = 20$$

$$\frac{5y}{5} = \frac{20}{5}$$

$$y = 4$$

$$(x, y) = (-5, 4)$$

$$\textcircled{75.} \quad \begin{aligned} -3x - 5y &= -15 \\ -5x + 2y &= 6 \end{aligned}$$

$$\begin{aligned} (-3x - 5y &= -15) \quad (2) \\ (-5x + 2y &= 6) \quad (5) \end{aligned}$$

$$\begin{aligned} -6x - 10y &= -30 \\ -25x + 10y &= 30 \end{aligned}$$

$$-31x + 0 = 0$$

$$-31x = 0$$

$$\frac{-31x}{-31} = \frac{0}{-31}$$

$$x = 0$$

Subst

$$-3x - 5y = -15$$

$$-3(0) - 5y = -15$$

$$0 - 5y = -15$$

$$-5y = -15$$

$$\frac{-5y}{-5} = \frac{-15}{-5}$$

$$y = 3$$

$$(x, y) = (0, 3)$$

$$\textcircled{76.} \quad (-2m^3n^2)(4mn^6) =$$

$$(-2m^3n^2)(4m^1n^6) =$$

$$-8m^{3+1}n^{2+6} =$$

$$-8m^4n^8 =$$

$$\textcircled{77.} \quad (3z^{11})(-5z^7)(z^3) =$$

$$(3z^{11})(-5z^7)(1z^3) =$$

$$-15z^{11+7+3} =$$

$$-15z^{21} =$$

78.  $(z^7)^5 =$

$z^{(7)(5)} =$  mult powers

$z^{35} =$

79.  $(3c^9)^2 =$

$(3c^9)(3c^9) =$

$9c^{9+9} =$

$9c^{18} =$

80.  $(-5a^4b^5c)^2 =$

$(-5)^1 a^4 b^5 c^1 =$

$(-5)^{1(2)} a^{4(2)} b^{5(2)} c^{1(2)} =$

$(-5)^2 a^8 b^{10} c^2 =$

$(-5)(-5) a^8 b^{10} c^2 =$

$25 a^8 b^{10} c^2 =$

81.

$$\left( \frac{-6x^4z^2}{y^3} \right)^2 =$$

$$\left( \frac{(-6)^1 x^4 z^2}{y^3} \right)^2 =$$

$$\frac{(-6)^{1(2)} x^{4(2)} z^{2(2)}}{y^{3(2)}} =$$

$$\frac{(-6)^2 x^8 z^4}{y^6} =$$

$$\frac{(-6)(-6) x^8 z^4}{y^6} =$$

$$\frac{36 x^8 z^4}{y^6} =$$

$$82) a^3 \cdot a^5 \cdot a^7 =$$

$$a^{3+5+7} =$$

$$a^{15} =$$

83.

$$\frac{2x^5 y^2 z}{x^3 y z} =$$

$$\frac{2x^5 y^2 z^1}{x^3 y^1 z^1} =$$

$$2x^{5-3} y^{2-1} z^{1-1} =$$

$$2x^2 y^1 z^0 =$$

$$2x^2 y =$$

84.

$$P(x) = x^2 + x + 5, \quad P(8)$$

$$P(8) = (8)^2 + (8) + 5$$

$$P(8) = (8)(8) + (8) + 5$$

$$P(8) = 64 + 8 + 5$$

$$P(8) = 72 + 5$$

$$P(8) = 77$$

$$85. \quad Q(x) = 3x^2 - 1, \quad Q(-7)$$

$$Q(-7) = 3(-7)^2 - 1$$

$$Q(-7) = 3(-7)(-7) - 1$$

$$Q(-7) = 3(49) - 1$$

$$Q(-7) = 147 - 1$$

$$Q(-7) = 146$$

$$86. \quad 5a^2 - 3ab + 2b^2 - 4a^2 - 6ab + 3b^2 =$$

$$1a^2 - 9ab + 5b^2 =$$

$$a^2 - 9ab + 5b^2 =$$

$$87. \quad (2y^2 + 9y - 2) - (-2y + 4) =$$
$$2y^2 + 9y - 2 + 2y - 4 =$$

$$2y^2 + 11y - 6 =$$

$$88. \quad (-3y^2 - 7y) + (2y^2 + y - 4) =$$
$$-3y^2 - 7y + 2y^2 + y - 4 =$$

$$-1y^2 - 6y - 4 =$$

$$-y^2 - 6y - 4 =$$

89

$$(x+7)(x^3-3x+5) =$$

$$x^4 - 3x^2 + 5x + 7x^3 - 21x + 35 =$$

$$x^4 + 7x^3 - 3x^2 - 16x + 35 =$$

90

$$-5x(x^2+7x-9) =$$

$$-5x^3 - 35x^2 + 45x =$$

91

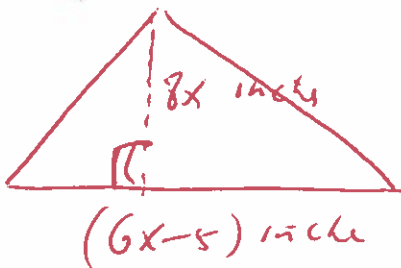
$$(7x+6)(4x^2-6x+7) =$$

$$28x^3 - 42x^2 + 49x + 24x^2 - 36x + 42 =$$

$$28x^3 - 18x^2 + 13x + 42 =$$

92

find area



$$A = \frac{1}{2} BH$$

$$A = \frac{1}{2} (6x-5)(8x)$$

$$A = \frac{1}{2} (48x^2 - 40x)$$

$$A = \frac{1}{2} (48x^2) - \frac{1}{2} (40x)$$

$$A = 24x^2 - 20x$$

Square inches

$$\begin{aligned} 93. \quad & 4(y-6)(8y-1) = \\ & 4(8y^2 - 1y - 48y + 6) = \\ & 4(8y^2 - 49y + 6) = \\ & 32y^2 - 196y + 24 = \end{aligned}$$

$$\begin{aligned} 94. \quad & (a-3)(a+3) = \\ & a^2 + 3a - 3a - 9 = \\ & a^2 - 9 = \end{aligned}$$

$$\begin{aligned} 95. \quad & (2b-4c)^2 = \\ & (2b-4c)(2b-4c) = \\ & 4b^2 - 8bc - 8bc + 16c^2 = \\ & 4b^2 - 16bc + 16c^2 = \end{aligned}$$

$$\begin{aligned} 96. \quad & 5^{-2} = \\ & \frac{1}{5^2} = \text{write} \end{aligned}$$

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

$$\frac{1}{25} =$$



97.  $\left(\frac{1}{2}\right)^{-4} =$

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

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

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

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

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

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

16 =

$$98) \frac{c^{-3}}{c^{-6}} =$$

$$\frac{c^6}{c^3} =$$

$$c^{6-3} =$$

$$c^3 =$$

$$99) (-3x^4y^{-5})(4x^{-1}y^2) =$$

$$-12x^{4-1}y^{-5+2} =$$

$$-12x^3y^{-3} =$$

$$\frac{-12x^3}{y^3} = \text{answer}$$

$$100) (a^{-8}b^9)^{-4} =$$

$$a^{-8(-4)} b^{9(-4)} =$$

$$a^{32} b^{-36} =$$

$$\frac{a^{32}}{b^{36}} =$$

101. Write the number in scientific notation.

$$64000 =$$

$$6.4 \times 10^4$$

102. Write the number in scientific notation.

$$0.00000197 =$$

$$1.97 \times 10^{-6}$$

103. 64, 72 find GCF Primes 2, 3, 5, 7, ...

$$\text{GCF} = 2 \cdot 2 \cdot 2$$

$$= 8$$

$$\begin{array}{r} 2 \overline{)64} \\ 2 \overline{)32} \\ 2 \overline{)16} \\ 2 \overline{)8} \\ 2 \overline{)4} \\ 2 \overline{)2} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)72} \\ 2 \overline{)36} \\ 2 \overline{)18} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array}$$

$$64 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$$

$$72 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3$$

$$\text{GCF} = 2 \cdot 2 \cdot 2 = 8$$

104.  $3x+21 =$  factor

$$3(x+7) =$$

105.  $8xy - 6x^2 =$  factor

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

106.  $-24x^6y^6 - 40x^9y^5 =$  factor

$8x^6y^5(-3y - 5x^3) =$

107.  $x^2 - 15x + 56 =$  factor

$(x - 7)(x - 8) =$

- possible
- 56.1
  - 28.2
  - 14.4
  - 8.7

108.  $x^2 - 2x - 48 =$  factor

$(x + 6)(x - 8) =$

- possible
- 48.1
  - 24.2
  - 12.4
  - 6.8

109.  $81x^2 - 121y^2 =$  factor

$(9x)^2 - (11y)^2 =$

$(9x + 11y)(9x - 11y) =$

- formula
- $a^2 - b^2$   
 $(a + b)(a - b)$
- 16.3

$$(110) \quad (x-2)(x+4)=0$$

$$\text{let } x-2=0 \text{ or } x+4=0$$

$$x-2+2=0+2 \text{ or } x+4-4=0-4$$

$$x=2 \text{ or } x=-4$$

$$(111) \quad x(x+7)=0$$

$$\text{let } x=0 \text{ or } x+7=0$$

$$x+7-7=0-7$$

$$x=-7$$

$$(112) \quad 8x(x-2)=0$$

$$\text{let } 8x=0 \text{ or } x-2=0$$

$$\frac{8x}{8} = \frac{0}{8} \text{ or } x-2+2=0+2$$

$$x=0 \text{ or } x=2$$

$$(113) \quad (8x+9)(7x-9)=0$$

$$\text{let } 8x+9=0 \text{ or } 7x-9=0$$

$$8x+9-9=0-9 \text{ or } 7x-9+9=0+9$$

$$8x=-9 \text{ or } 7x=9$$

$$\frac{8x}{8} = \frac{-9}{8} \text{ or } \frac{7x}{7} = \frac{9}{7}$$

$$x = \frac{-9}{8} \text{ or } x = \frac{9}{7}$$

$$114 \quad x^2 - 10x + 16 = 0$$

$$(x-2)(x-8) = 0$$

$$\text{so } x-2=0 \quad \text{OR} \quad x-8=0$$

$$x-2+2=0+2 \quad \text{OR} \quad x-8+8=0+8$$

$$x=2 \quad \text{OR} \quad x=8$$

$$\begin{array}{l} 6.1 \\ 8.2 \\ 44 \end{array}$$

Possible

$$115 \quad x^2 + 3x - 28 = 0$$

$$(x-4)(x+7) = 0$$

$$\text{so } x-4=0 \quad \text{OR} \quad x+7=0$$

$$x-4+4=0+4 \quad \text{OR} \quad x+7-7=0-7$$

$$x=4 \quad \text{OR} \quad x=-7$$

$$\begin{array}{l} 28.1 \\ 14.2 \\ 4.7 \end{array}$$

Possible

$$116 \quad x^2 - 3x = 0$$

$$x(x-3) = 0$$

$$\text{so } x=0 \quad \text{OR} \quad x-3=0$$

$$\text{OR} \quad x-3+3=0+3$$

$$\text{OR} \quad x=3$$

$$(117) \quad x^3 - 12x^2 + 27x = 0$$

$$x(x^2 - 12x + 27) = 0$$

$$x(x-3)(x-9) = 0$$

$$x=0 \quad \text{OR} \quad x-3=0 \quad \text{OR} \quad x-9=0$$

$$x-3+3=0+3 \quad \text{OR} \quad x-9+9=0+9$$

$$x=3$$

$$\text{OR} \quad x=9$$

27.1  
3.9 possible

(118)

$$\frac{x+9}{x^2 - x - 90}$$

$$\frac{(x+9)}{(x+9)(x-10)}$$

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

90.1  
10.9 possible  
5.18  
2.45

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

(119)  $\frac{x^2 - 49}{x^2 - 4x - 21} \cdot \frac{x+3}{x} =$

$$\frac{(x)^2 - (7)^2}{x^2 - 4x - 21} \cdot \frac{(x+3)}{x} =$$

$$\frac{(x+7)(x-7)}{(x+3)(x-7)} \cdot \frac{(x+3)}{(x)} =$$

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

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

(120)  $\frac{a^2 + 18a + 80}{a^2 + 3a - 4} \cdot \frac{a^2 + 2a - 3}{a^2 + 20a + 100} =$

$$\frac{(a+8)(a+10)}{(a-1)(a+4)} \cdot \frac{(a-1)(a+3)}{(a+10)(a+10)} =$$

$$\frac{(a+8)(a+10)}{(a-1)(a+4)} \cdot \frac{(a-1)(a+3)}{(a+10)(a+10)} =$$

$$\frac{(a+8)(a+3)}{(a+4)(a+10)} =$$



(21)

$$\frac{3m}{4n} + \frac{5m}{4n} =$$

$$\frac{(3m) + (5m)}{4n} =$$

$$\frac{3m + 5m}{4n} =$$

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

$$\frac{\cancel{(2)}\cancel{(2)}\cancel{(2)} m}{\cancel{(2)}\cancel{(2)} n} =$$

$$\frac{2m}{n} =$$

Primes 2, 3, 5, 7...

$$\begin{array}{r} 2 \cancel{4} \\ 2 \cancel{2} \\ \hline \end{array}$$

$$\begin{array}{r} 2 \cancel{8} \\ 2 \cancel{4} \\ 2 \cancel{2} \\ \hline \end{array}$$

(22)

$$\frac{y-8}{5} = \frac{y}{9}$$

$$9(y-8) = 5(y) \quad \text{cross mult}$$

$$9y - 72 = 5y$$

$$9y - 72 + 72 = 5y + 72$$

$$9y = 5y + 72$$

$$9y - 5y = 5y + 72 - 5y$$

$$4y = 72$$

$$\frac{4y}{4} = \frac{72}{4}$$

$$y = 18$$

(123)  $|2x-3|=5$

Formula  
 $|x|=a$   
 $x=-a$  OR  $x=a$

Let  
 $2x-3=-5$  OR  $2x-3=5$

$2x-3+3=-5+3$  OR  $2x-3+3=5+3$

$2x=-2$  OR  $2x=8$

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

$x=-1$  OR  $x=4$

(124)  $|x-3|<8$

Formula  
 $|x|<a$   
 $-a<x<a$

$-8<x-3<8$

$-8+3<x-3+3<8+3$

$-5<x<11$



$(-5, 11)$

$$(125) \sqrt{36x^6} =$$

$$6x^{6/2} = \text{divide power}$$

$$6x^3 =$$

$$(126) \sqrt[3]{27} = \text{Prime } 2, 3, 5, 7, \dots$$

$$\sqrt[3]{3^3} =$$

$$3^{3/3} =$$

$$3^1 =$$

$$3 =$$

$$\begin{array}{r} 3 \overline{) 27} \\ \underline{30} \phantom{0} \\ 30 \phantom{0} \\ \underline{30} \\ 0 \end{array}$$

$$(127) \sqrt{\frac{49}{36}} =$$

$$\frac{\sqrt{49}}{\sqrt{36}} =$$

$$\frac{7}{6} =$$

$$\textcircled{128} \left(\frac{16}{81}\right)^{\frac{1}{4}} =$$

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

$$\frac{2^{\left(\frac{4}{1}\right)\left(\frac{1}{4}\right)}}{3^{\left(\frac{4}{1}\right)\left(\frac{1}{4}\right)}} = \text{mult powers}$$

$$\frac{2^{\frac{4}{4}}}{3^{\frac{4}{4}}} =$$

$$\frac{2^1}{3^1} =$$

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

Prims 2, 3, 5, 7, ...

$$\begin{array}{r} 2 \overline{) 16} \\ 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \overline{) 2} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{) 81} \\ 3 \overline{) 27} \\ 3 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

129

$$1024^{3/5} =$$

Prime 2, 3, 5, 7, ...

$$(2^{10})^{3/5} =$$

$$2^{(10/1)(3/5)} = \text{Mult Primes}$$

$$2^{30/5} =$$

$$2^6 =$$

$$\begin{array}{r}
 2 \overline{)1024} \\
 \underline{2048} \\
 2 \overline{)512} \\
 \underline{1024} \\
 2 \overline{)256} \\
 \underline{512} \\
 2 \overline{)128} \\
 \underline{256} \\
 2 \overline{)64} \\
 \underline{128} \\
 2 \overline{)32} \\
 \underline{64} \\
 2 \overline{)16} \\
 \underline{32} \\
 2 \overline{)8} \\
 \underline{16} \\
 2 \overline{)4} \\
 \underline{8} \\
 2 \overline{)2} \\
 \underline{4} \\
 1
 \end{array}$$

$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 =$$

$$64 =$$

130

$$\sqrt{63} =$$

Prime 2, 3, 5, 7, ...

$$\sqrt{9 \cdot 7} =$$

$$\sqrt{9} \sqrt{7} =$$

$$\begin{array}{r}
 3 \overline{)63} \\
 \underline{63} \\
 3 \overline{)21} \\
 \underline{21} \\
 7 \overline{)7} \\
 \underline{7} \\
 1
 \end{array}$$

$$3\sqrt{7} =$$

$$(131) \quad \sqrt{x-17} = 2$$

$$(\sqrt{x-17})^2 = (2)^2$$

$$x-17=4$$

$$x-17+17=4+17$$

$$x=21$$

$$(132) \quad \sqrt{-25} =$$

$$5i =$$

$$(133) \quad (x+9)^2 = 4$$

$$\sqrt{(x+9)^2} = \pm\sqrt{4}$$

$$x+9 = \pm 2$$

$$x+9 = -2 \quad \text{OR} \quad x+9 = 2$$

$$x+9-9 = -2-9 \quad \text{OR} \quad x+9-9 = 2-9$$

$$x = -11$$

$$\text{OR} \quad x = -7$$

for more

$$\sqrt{-1} = i$$

$$\sqrt{-4} = 2i$$

$$\sqrt{-9} = 3i$$

$$\sqrt{-16} = 4i$$

$$(134.) \quad m^2 + 4m + 3 = 0$$

$$(m+1)(m+3) = 0$$

$$m+1=0 \quad \text{OR} \quad m+3=0$$

$$m+1-1=0-1 \quad \text{OR} \quad m+3-3=0-3$$

$$m = -1 \quad \text{OR} \quad m = -3$$

~~Use Quadratic formula~~

$$1m^2 + 4m + 3 = 0$$

$$a=1, \quad b=4, \quad c=3$$

$$m = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$m = \frac{-(4) \pm \sqrt{(4)^2 - 4(1)(3)}}{2(1)}$$

$$m = \frac{-4 \pm \sqrt{16 - 12}}{2}$$

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

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

$$m = -2 \pm 1$$

$$m = -2 - 1 \quad \text{OR} \quad m = -2 + 1$$

$$m = -3$$

$$m = -1$$

135

$$y = 2y^2 - 1$$

$$0 = 2y^2 - 1 - y$$

$$0 = 2y^2 - y - 1$$

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

$$\text{or } 2y + 1 = 0 \text{ or } y - 1 = 0$$

$$2y + 1 = 0 - 1 \text{ or } y - 1 + 1 = 0 + 1$$

$$2y = -1$$

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

or

$$y = 1$$

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

Use Quadratic formula

$$2y^2 - y - 1 = 0$$

$$a = 2, b = -1, c = -1$$

$$y = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$y = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(2)(-1)}}{2(2)}$$

$$y = \frac{1 \pm \sqrt{1 + 8}}{4}$$

$$y = \frac{1 \pm \sqrt{9}}{4}$$

$$y = \frac{1 \pm 3}{4}$$

$$y = \frac{1+3}{4} \text{ or } y = \frac{1-3}{4}$$

$$y = \frac{4}{4} \text{ or } y = \frac{-2}{4}$$

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

$$y = 1$$

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

$$y = 1 \text{ or } y = -\frac{1}{2}$$



136  $x^2 - 2x + 1 = 0$   
 $a=1, b=-2, c=1$

use Quad form

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(1)}}{2(1)}$$

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

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

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

$$x = \frac{2+0}{2} \text{ OR } x = \frac{2-0}{2}$$

$$x = \frac{2}{2} \text{ OR } x = \frac{2}{2}$$

$$x = 1 \text{ OR } x = 1$$

~~$x^2 - 2x + 1 = 0$   
 $(x-1)(x+1) = 0$   
 $x-1 = 0$  OR  $x+1 = 0$   
 $x-1+1 = 0+1$  OR  $x-1+1 = 0+1$~~

$x=1$  OR  $x=1$

$$(137) \quad 1x^2 + 4x + 8 = 0$$

$$a=1, \quad b=4, \quad c=8$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(4) \pm \sqrt{(4)^2 - 4(1)(8)}}{2(1)}$$

$$x = \frac{-4 \pm \sqrt{16 - 32}}{2}$$

$$x = \frac{-4 \pm \sqrt{-16}}{2}$$

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

$$x = -2 \pm 2i$$

$$x = -2 - 2i$$

$$\text{OR } x = -2 + 2i$$