

①  $0 > -5$

Math 0410/139 Aleks Step

~~05-18-19~~  
DONE  
05-18-19

②  $|-15| =$

$(15) =$

$15 =$

③  $2x - y$ ,  $x = 7$ ,  $y = -2$

$2(7) - (-2) =$

$14 + 2 =$

$16 =$

④

$-3^2 =$

$-(3)(3) =$

$-(9) =$

$-9 =$

U  
U  
U

✓

✓

✓

✓

✓

✓

✓

✓

$$5. \frac{-19}{0} =$$

undefiniet

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

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

$$(36) =$$

$$36 =$$

$$7.$$

$$(-3)^3 =$$

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

$$(9)(-3) =$$

$$(-27) =$$

$$-27 =$$

$$8.$$

$$(-9) + 4 \div 2 =$$

$$(-9) + 2 =$$

$$-9 + 2 =$$

$$-7 =$$

$$9. \quad 3 + 4 \times 9 - 12 =$$

$$3 + 36 - 12 =$$

$$39 - 12 =$$

$$27 =$$

10.

$$9(-3) - (-13) =$$

$$-27 + 13 =$$

$$-14 =$$

11.

$$|15 - 55| \div 20 =$$

$$|-40| \div 20 =$$

$$(40) \div 20 =$$

$$40 \div 20 =$$

$$2 =$$

12.

$$(-15 - 33) \div 16 - 24 =$$

$$(-48) \div 16 - 24 =$$

$$-48 \div 16 - 24 =$$

$$-3 - 24 =$$

$$-27 =$$

$$\begin{aligned} 13. \quad & (-15 - 33) \div 16 - 22 = \\ & (-48) \div 16 - 22 = \\ & -48 \div 16 - 22 = \\ & -3 - 22 = \\ & -25 = \end{aligned}$$

$$\begin{aligned} 14. \quad & 8(-11) \div [2(-8) - 3(-5)] = \\ & 8(-11) \div [-16 + 15] = \\ & 8(-11) \div [-1] = \\ & -88 \div [-1] = \\ & 88 = \end{aligned}$$

$$\begin{aligned} 15. \quad & 4x - 5y - 12z = \text{Eval } x = -3, y = 4, \\ & z = -1 \\ & 4(-3) - 5(4) - 12(-1) = \\ & -12 - 20 + 12 = \\ & -32 + 12 = \\ & -20 = \end{aligned}$$

16.  $x^2 - y =$  eval  $x = -3, y = 4$

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

$$(-3)(-3) - (4) =$$

$$(9) - (4) =$$

$$9 - 4 =$$

$$5 =$$

17.

$$d - 3 = -4$$

$$d - 3 + 3 = -4 + 3$$

$$d = -1$$

18

$$-3z = 24$$

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

$$z = -8$$

19.

$$\frac{n}{6} = -6$$

$$6\left(\frac{n}{6}\right) = 6(-6)$$

$$n = -36$$

$$20) -4x = 0$$

$$\frac{-4x}{-4} = \frac{0}{-4}$$

$$x = 0$$

$$21) d - 2 = -24$$

$$d - \cancel{2} + \cancel{2} = -24 + 2$$

$$d = -22$$

$$22) \frac{x}{-8} = -5$$

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

$$x = 40$$

$$23) 3(a - 5) =$$

$$3a - 15 =$$

$$24) -6(2q + 3) =$$

$$-12q - 18 =$$

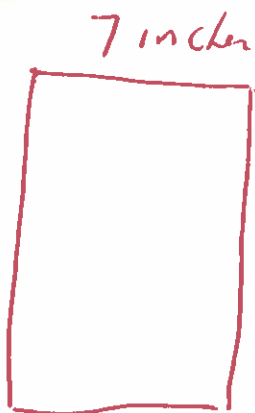
$$\begin{aligned} 25. \quad & 7(x+7) - 47 = \\ & 7x + 49 - 47 = \\ & 7x + 2 = \end{aligned}$$

$$\begin{aligned} 26. \quad & -5(6n-4) + 3n = \\ & -30n + 20 + 3n = \\ & -27n + 20 = \end{aligned}$$

$$\begin{aligned} 27. \quad & 17y - 22y = \\ & -5y = \end{aligned}$$

$$\begin{aligned} 28. \quad & 6y - 3(y-3) + 5 = \\ & 6y - 3y + 9 + 5 = \\ & 3y + 14 = \end{aligned}$$

29. find area



$$\begin{aligned} A &= L \cdot W \\ A &= (6y)(7) \\ A &= 42y \text{ square inches} \end{aligned}$$

30 find area  $L=48$  ,  $W=36$   
feet , feet

$$A=L \cdot W$$

$$A=(48)(36)$$

$$A=1728 \text{ square feet}$$

31 find perimeter  $L=14$  feet  $W=12$  feet

$$P=2L+2W$$

$$P=2(14)+2(12)$$

$$P=28+24$$

$$P=52 \text{ feet}$$

32  $5W-8W=18$

$$-3W=18$$

$$\frac{-3W}{-3} = \frac{18}{-3}$$

$$W=-6$$

33

$$42 = t + 5t$$

$$42 = 1t + 5t$$

$$42 = 6t$$

$$\frac{42}{6} = \frac{6t}{6}$$

$$7 = t$$



34

$$-3x - 3x = 31 - 7$$

$$-6x = 24$$

$$\frac{-6x}{-6} = \frac{24}{-6}$$

$$x = -4$$

35

$$3(3x - 2) = 10x$$

$$9x - 6 = 10x$$

$$9x - 6 + 6 = 10x + 6$$

$$9x = 10x + 6$$

$$9x - 10x = 10x + 6 - 10x$$

$$-1x = 6$$

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

$$x = -6$$

36

$$13y = 4(3y - 5)$$

$$13y = 12y - 20$$

$$13y - 12y = 12y - 20 - 12y$$

$$1y = -20$$

$$y = -20$$

$$37 \quad 3(y-2) = y-6$$

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

$$3y - \cancel{6} + \cancel{6} = y - \cancel{6} + \cancel{6}$$

$$3y = y$$

$$3y = 1y$$

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

$$2y = 0$$

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

$$y = 0$$

$$38 \quad 7(3x-2) = 22x$$

$$21x - 14 = 22x$$

$$21x - \cancel{14} + \cancel{14} = 22x + 14$$

$$21x = 22x + 14$$

$$21x - 22x = 22x + 14 - 22x$$

$$-1x = 14$$

$$\frac{-1x}{-1} = \frac{14}{-1}$$

$$x = -14$$

39.

$$\frac{-3}{2} \cdot \frac{5}{6} =$$

$$\frac{-1(3)}{2} \cdot \frac{5}{(2)(3)} =$$

$$\frac{-1(\cancel{3})}{2} \cdot \frac{5}{(2)(\cancel{3})} =$$

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

40.

$$\frac{7}{8} \cdot \frac{15}{16} =$$

$$\frac{7}{8} \cdot \frac{16}{15} =$$

$$\frac{7}{(\cancel{2})(\cancel{2})(\cancel{2})} \cdot \frac{(2)(\cancel{2})(\cancel{2})}{(3)(5)} =$$

$$\frac{14}{15} =$$

41

$$\frac{1}{15} + \frac{8}{15} =$$

$$\frac{1+8}{15} =$$

$$\frac{9}{15} =$$

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

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

42.

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

$$\text{LCD} = 8$$

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

$$\frac{4}{8} + \frac{1}{8} =$$

$$\frac{4+1}{8} =$$

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

43

$$\frac{1}{6} - \frac{4}{9} =$$

$$\text{LCD} = 18$$

$$\frac{1}{6} \left( \frac{3}{3} \right) - \frac{4}{9} \left( \frac{2}{2} \right) =$$

$$\frac{3}{18} - \frac{8}{18} =$$

$$\frac{3-8}{18} =$$

$$\frac{-5}{18} =$$

Prime 2, 3, 5, 7...

2	6	3	9
3	3	3	3
	1		1

$$6 = 2 \cdot 3$$

$$9 = 3 \cdot 3$$

$$\text{LCD} = 2 \cdot 3 \cdot 3 = 18$$

44

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

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

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

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

$$45 \quad -14 = \frac{2}{13}x$$

$$\frac{13}{2} \left( \frac{-14}{1} \right) = \frac{13}{2} \left( \frac{2}{13}x \right)$$

$$\frac{13}{2} \left( \frac{(2)(-7)}{1} \right) = x$$

$$\frac{13}{\cancel{2}} \cdot \frac{(2)(-7)}{1} = x$$

$$-91 = x$$

$$\boxed{-91 = x}$$

$$46 \quad \frac{z}{5} = \frac{z}{4} + 8 \quad \boxed{L(1) = 20}$$

$$\frac{z}{5}(20) = \frac{z}{4}(20) + 8(20)$$

$$z(4) = z(5) + 160$$

$$4z = 5z + 160$$

$$4z - 5z = 5z + 160 - 5z$$

$$-1z = 160$$

$$\frac{-1z}{-1} = \frac{160}{-1}$$

$$\boxed{z = -160}$$

$$47. \quad -60525 \times 1000 =$$

$$-65250 =$$

$$48. \quad \frac{77.728}{100} =$$

$$.77728 =$$

$$49. \quad 4.4x - 49 = 2.8x + 7$$

$$4.4x - \cancel{49} + \cancel{49} = 2.8x + 7 + 49$$

$$4.4x = 2.8x + 56$$

$$4.4x - 2.8x = \cancel{2.8x} + 56 - \cancel{2.8x}$$

$$1.6x = 56$$

$$\frac{1.6x}{1.6} = \frac{56}{1.6}$$

$$x = 35$$

$$\textcircled{50} \quad \frac{3}{5} = \frac{x}{15}$$

$$3(15) = 5(x) \text{ Cross mult}$$

$$45 = 5x$$

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

$$\textcircled{9 = x}$$

$\textcircled{51.}$

$$\frac{12}{84} = \frac{19}{x}$$

$$12(x) = 84(19)$$

$$12x = 1596$$

$$\frac{12x}{12} = \frac{1596}{12}$$

$$\textcircled{x = 133}$$



52 Write the percent as a decimal

$$77.7\% =$$

$$.777 =$$

53 Write the decimal as a percent

$$0.27 =$$

$$27\% =$$

54 Write the fraction as a percent

$$\frac{1}{5} = \frac{x}{100}$$

$$1(100) = 5(x) \text{ (cross mult)}$$

$$100 = 5x$$

$$\frac{100}{5} = \frac{5x}{5}$$

$$20 = x$$

$$20\% = x$$

55. 30% written as a decimal is 0.30

30% written as a fraction is

Prima 2, 3, 5, 7

$$\frac{30}{100} =$$

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

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

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

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

$$2 \overline{) 30}$$

$$3 \overline{) 15}$$

$$5 \overline{) 5}$$

$$1$$

$$30 = 2 \cdot 3 \cdot 5$$

$$2 \overline{) 100}$$

$$2 \overline{) 50}$$

$$5 \overline{) 25}$$

$$5 \overline{) 5}$$

$$1$$

$$\frac{3}{10} =$$

simplified fraction

56

$$A = P - PD$$

$$A = \$360 - 360(0.10)$$

$$A = \$360 - \$36 \leftarrow \text{discount}$$

$$A = \$324 \leftarrow \text{Sale Price}$$

$$P = \$360, D = 10\% = 0.10$$

57  $A = P + PRT$   $P = 93000$ ,  $R = 5.5\% = .055$   
 $T = 8$

$A = 93000 + 93000 (.055)(8)$

$A = 93000 + 93000 (.44)$

$A = 93000 + 40920$  ← interest paid on loan

$A = 133920$  ← Total amount paid

58 Find area

$A = \pi r^2$

$A = \pi (21.5)^2$

$A = \pi (21.5)(21.5)$

$A = \pi (462.25)$

$A = 462.25 \pi$  Square inches

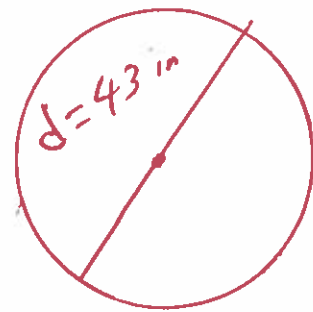
$A = \pi r^2$

$A = 3.14 (21.5)^2$

$A = 3.14 (21.5)(21.5)$

$A = 3.14 (462.25)$

$A = 1451.465$  Square inches



$r = \frac{1}{2}(d) = \frac{1}{2}(43)$

$r = 21.5$

$r = 21.5$

$\pi = 3.14$

59) find area

$$A = \pi r^2$$

$$A = \pi (18)^2$$

$$A = \pi (18)(18)$$

$$A = \pi (324)$$

$$A = 324\pi \text{ Square inches}$$

$$A = \pi r^2 \quad \pi = \frac{22}{7}$$

$$A = \frac{22}{7} (18)^2$$

$$A = \frac{22}{7} (18)(18)$$

$$A = \frac{22}{7} (324)$$

$$A = \frac{7128}{7}$$

$$\begin{array}{r} 1018 \frac{2}{7} \\ 7 \overline{) 7128} \\ \underline{(7)} \phantom{00} \\ 12 \phantom{00} \\ \underline{-(7)} \phantom{00} \\ 58 \phantom{00} \\ \underline{-(56)} \phantom{00} \\ 2 \text{ Rem} \end{array}$$

$$A = 1018 \frac{2}{7} \text{ Square inches}$$

$$(60) \quad 8(x+6) + 5 = 53$$

$$8x + 48 + 5 = 53$$

$$8x + 53 = 53$$

$$8x + 53 - 53 = 53 - 53$$

$$8x = 0$$

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

$$x = 0$$

(61.)

$$6(4x+9) = 24x+54$$

$$24x + 54 = 24x + 54$$

$$24x + 54 - 54 = 24x + 54 - 54$$

$$24x = 24x$$

$$24x - 24x = 24x - 24x$$

$$0 = 0$$

The solution is all real numbers

62

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

$(CD) = 5$

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

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

$$1x + 25 = 1x$$

$$1x + 25 - 25 = 1x - 25$$

$$1x = 1x - 25$$

$$1x - 1x = 1x - 25 - 1x$$

$$0 \neq -25$$

There is no solution

63

$$8x + y = 6$$

$y =$

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

$$y = 6 - 8x$$

OR

$$y = -8x + 6$$

$$(64) \quad A = B + Bcd$$

$$A - B = \cancel{B} + Bcd - \cancel{B}$$

$$A - B = Bcd$$

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

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

$$c =$$

65

$$5x < -30$$

$$\frac{5x}{5} < \frac{-30}{5}$$

$$x < -6$$



$$(-\infty, -6)$$

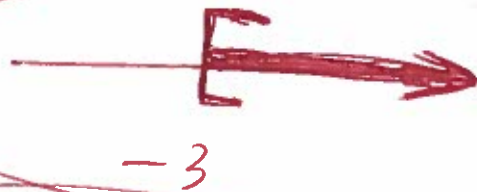
66

$$-6x \leq 18$$

$$\frac{-6x}{-6} \geq \frac{18}{-6}$$

$$x \geq -3$$

Divide by a negative  
Turn the alligator around



$$[-3, \infty)$$

67.

$$-8x + 6 \geq 6(2-x)$$

$$-8x + 6 \geq 12 - 6x$$

$$-8x + \cancel{6} - \cancel{6} \geq 12 - \cancel{6x} + 6$$

$$-8x \geq -6x + 6$$

$$-8x + 6x \geq -\cancel{6x} + 6 + \cancel{6x}$$

$$-2x \geq 6$$

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

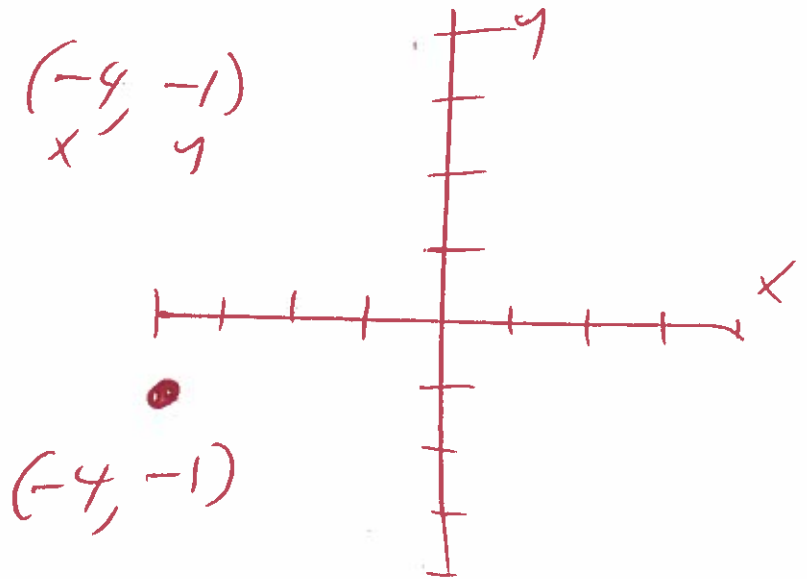
$$x \leq -3$$



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

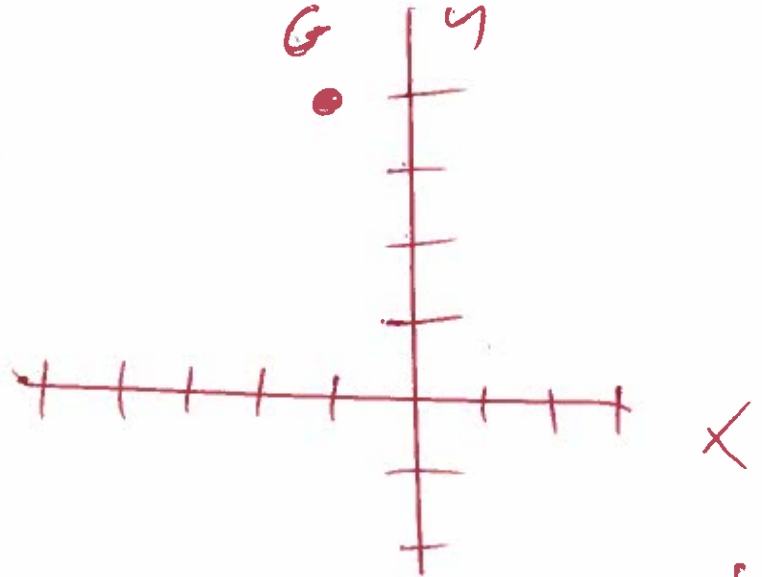


68 graph point  $(-4, -1)$   
 $x$   $y$



69 find the  $x$  and  $y$  coordinates of point G

$(-1, 4)$



70  $y = \frac{1}{7}x + 5$

$x$	$y$
0	5
-21	2
-35	0

$y = \frac{1}{7}(0) + 5$

$y = 0 + 5$

$y = 5$

$y = \frac{1}{7}(-21) + 5$

$y = -3 + 5$

$y = 2$

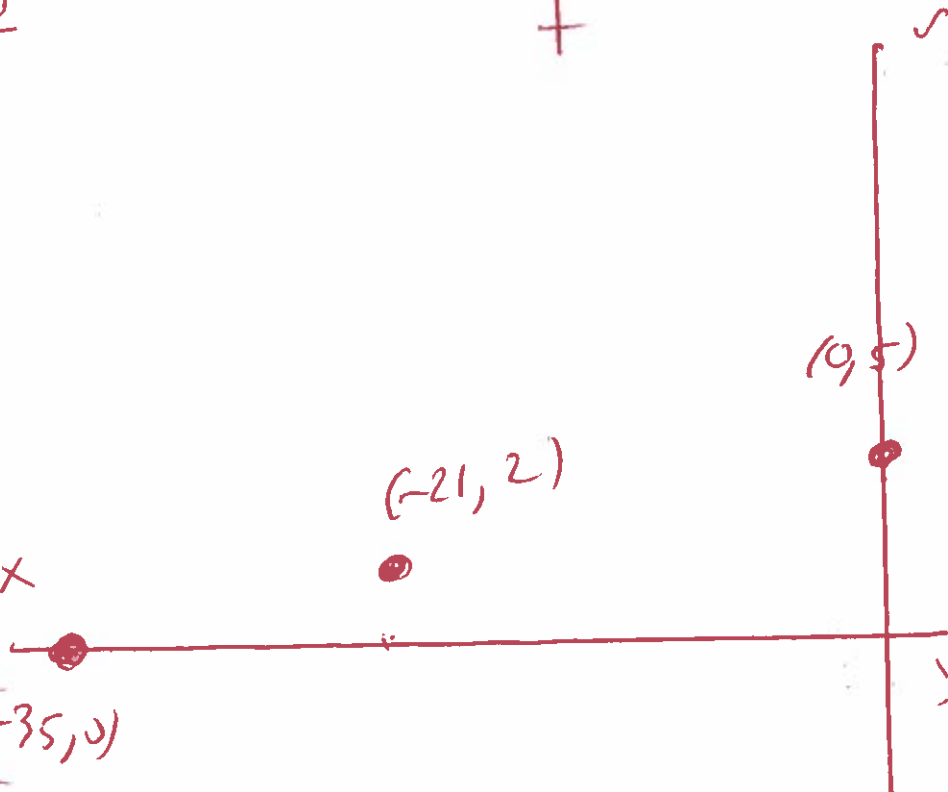
$0 = \frac{1}{7}x + 5$

$0 - 5 = \frac{1}{7}x + 5 - 5$   $-35 = x$

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

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

$(-35, 0)$



71)  $y = -3x + 2$  graph

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

$$y = 0 + 2$$

$$y = 2$$

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

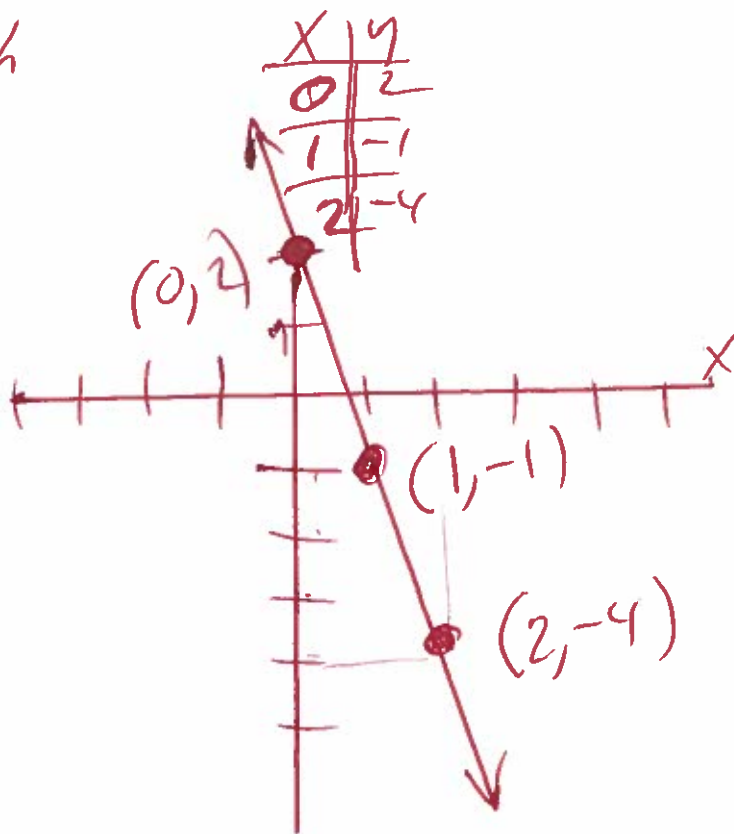
$$y = -3 + 2$$

$$y = -1$$

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

$$y = -6 + 2$$

$$y = -4$$



72)  $y = -2x + 2$

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

$$y = 0 + 2$$

$$y = 2$$

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

$$y = -2 + 2$$

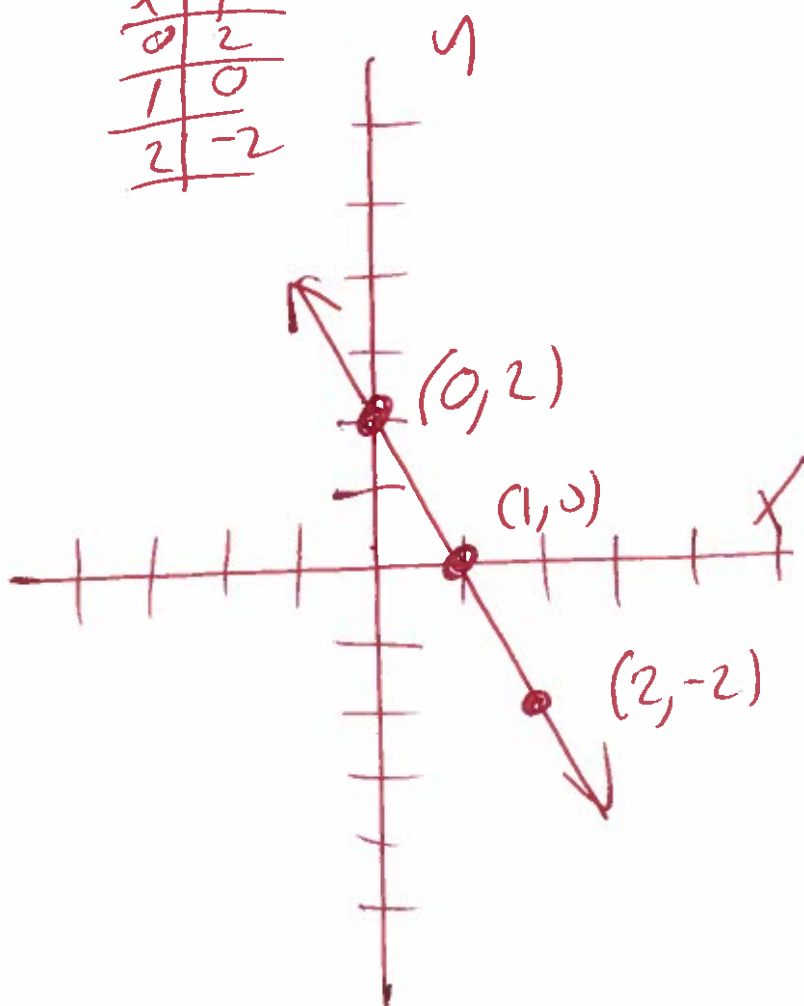
$$y = 0$$

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

$$y = -4 + 2$$

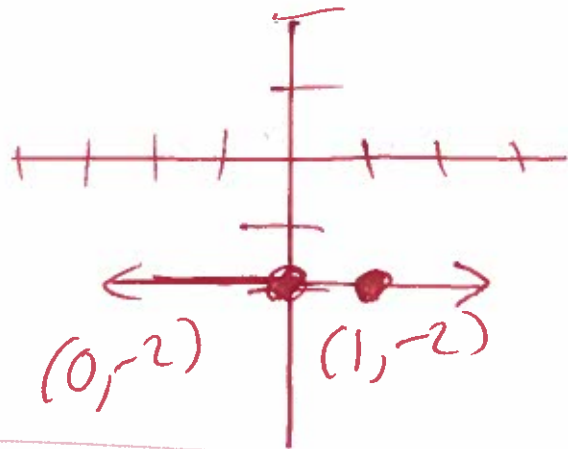
$$y = -2$$

x	y
0	2
1	0
2	-2



73.  $y = -2$  graph

x	y
0	-2
1	-2



74.  $y = -\frac{1}{2}x - 1$  graph

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

$y = 0 - 1$

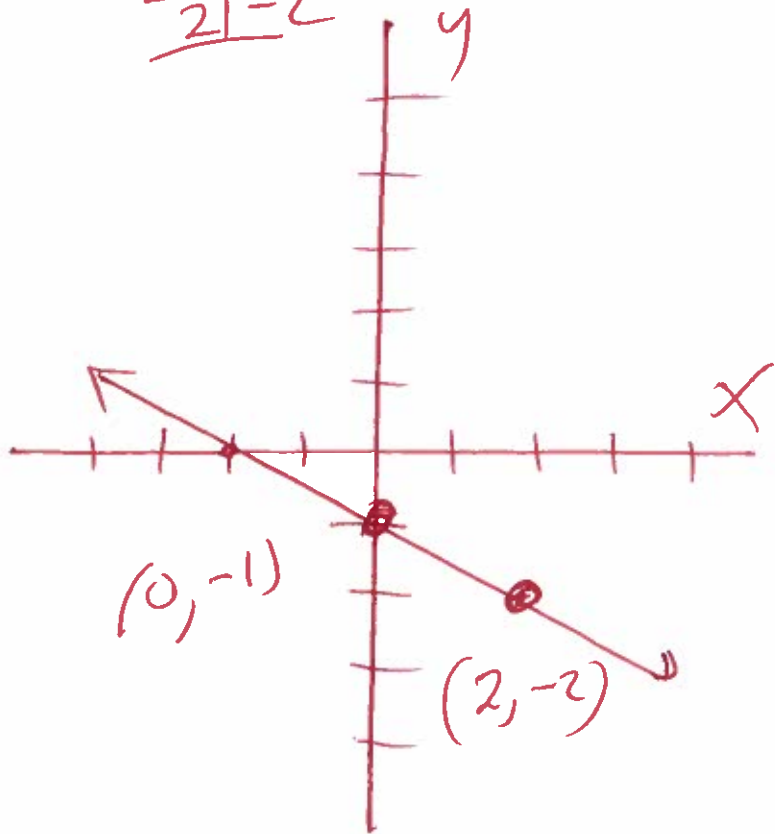
$y = -1$

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

$y = -1 - 1$

$y = -2$

x	y
0	-1
2	-2



75. Plot the intercepts

$$7x - 4y = 28$$

find x-int let  $y = 0$

$$7x - 4(0) = 28$$

$$7x - 0 = 28$$

$$7x = 28$$

$$\frac{7x}{7} = \frac{28}{7}$$

$$x = 4$$

find y-int let  $x = 0$

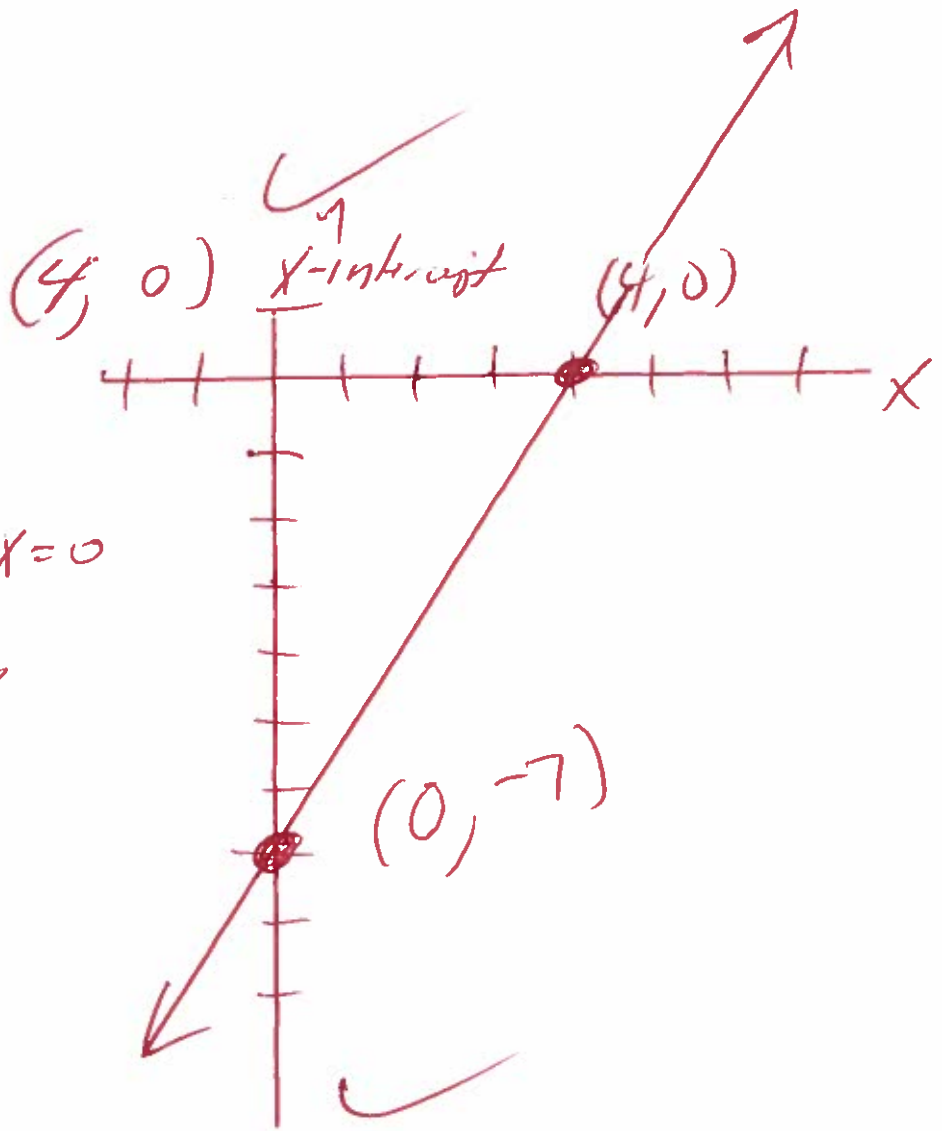
$$7(0) - 4y = 28$$

$$0 - 4y = 28$$

$$-4y = 28$$

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

$$y = -7$$



$(0, -7)$  y-intercept

76) find slope  $(3, 4)$  and  $(2, 5)$   
 $x_1 \ y_1 \quad x_2 \ y_2$

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

$$m = \frac{(4) - (5)}{(3) - (2)}$$

$$m = \frac{4 - 5}{3 - 2}$$

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

$$m = -1$$

77) find slope  $(10, 4)$  and  $(9, 5)$   
 $x_1 \ y_1 \quad x_2 \ y_2$

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

$$m = \frac{(4) - (5)}{(10) - (9)}$$

$$m = \frac{4 - 5}{10 - 9}$$

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

$$m = -1$$

78. find slope  $(-3, -9)$  and  $(9, -8)$   
 $x_1, y_1$        $x_2, y_2$

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

$$m = \frac{(-9) - (-8)}{(-3) - (9)}$$

$$m = \frac{-9 + 8}{-3 - 9}$$

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

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

79. find the slope of the line

$$y = -2x + 8$$

$$y = mx + b$$

Slope = m

y-intercept = b

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

80. find the slope of the line

$$7x + y = 7$$

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

$$y = 7 - 7x$$

$$y = -7x + 7$$

$$y = mx + b$$

Slope = m

y-intercept = b

$$\text{Slope} = m = -7$$

81) find the slope of the line

$$8x - 7y = 56$$

$$8x - 7y - 8x = 56 - 8x$$

$$-7y = 56 - 8x$$

$$\frac{-7y}{-7} = \frac{56}{-7} - \frac{8x}{-7}$$

$$y = -8 + \frac{8}{7}x$$

$$y = mx + b$$

Slope = m      y intercept = b

$$y = \frac{8}{7}x - 8$$

$$\text{Slope} = m = \frac{8}{7}$$

82) find the slope-intercept form of the line  
with slope =  $m = 5$  at point  $(-8, 9)$   
 $x_1, y_1$

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

Point Slope  
Formula

$$y - (9) = 5(x - (-8))$$

$$y - 9 = 5(x + 8)$$

$$y - 9 = 5x + 40$$

$$y - 9 + 9 = 5x + 40 + 9$$

$$y = 5x + 49$$

83)  $x^2 - 3x + 1$  Eval if  $x = -2$

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

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

$$4 + 6 + 1 =$$

$$10 + 1 =$$

$$11 =$$

84) Is  $(5, 2)$  a solution  $IS (6, 4)$  a solution

$$2x - y = 8$$

$$x + 9y = 23$$

$$2(5) - (2) = 8 \text{ subst}$$

$$10 - 2 = 8$$

$$8 = 8 \quad \checkmark \text{ YES}$$

$$(5) + 9(2) = 23$$

$$5 + 18 = 23 \quad \checkmark \text{ yes}$$

$$23 = 23 \quad \checkmark$$

YES  $(5, 2)$  is a solution  $\checkmark$

$$2x - y = 8$$

$$x + 9y = 23$$

$$2(6) - (4) = 8$$

$$12 - 4 = 8$$

$$8 = 8 \quad \checkmark \text{ yes}$$

$$(6) + 9(4) = 23$$

$$6 + 36 = 23$$

$$42 \neq 23$$

NO  $(6, 4)$  is not a solution

~~NO~~



85  $y = 2x$   
 $-4x + y = -6$

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

$-4x + 2x = -6$

$-2x = -6$

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

$x = 3$

Substitution Method

Subs

Subs

$y = 2x$

$y = 2(3)$

$y = 6$

$(x, y) = (3, 6)$

86

$y = 2x + 1$

$3y - 3x = 9$

$3(2x + 1) - 3x = 9$

$6x + 3 - 3x = 9$

$3x + 3 = 9$

$3x + 3 - 3 = 9 - 3$

$3x = 6$

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

$x = 2$

Substitution Method

Substitute

Subst

$y = 2x + 1$

$y = 2(2) + 1$

$y = 4 + 1$

$y = 5$

$(x, y) = (2, 5)$

87

$$\begin{array}{r} 4x - y = 11 \\ 6x + y = 29 \\ \hline \end{array}$$

$$10x + 0 = 40$$

$$10x = 40$$

$$\frac{10x}{10} = \frac{40}{10}$$

$$x = 4$$

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

Subst

$$4x - y = 11$$

$$4(4) - y = 11$$

$$16 - y = 11$$

$$16 - y - 16 = 11 - 16$$

$$-y = -5$$

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

$$y = 5$$

88

$$x^3 \cdot x =$$

$$x^3 \cdot x^1 =$$

$$x^{3+1} =$$

$$x^4 =$$

$$\begin{aligned}
 & \textcircled{89} \quad (-5b^2c^4)(4bc^3) = \\
 & \quad (-5b^2c^4)(4b^1c^3) = \\
 & \quad -20b^{2+1}c^{4+3} = \\
 & \quad -20b^3c^7 =
 \end{aligned}$$

$$\begin{aligned}
 & \textcircled{90} \quad (2z^{10})(-4z^8)(z^3) = \\
 & \quad (2z^{10})(-4z^8)(1z^3) = \\
 & \quad -8z^{10+8+3} = \\
 & \quad -8z^{21} =
 \end{aligned}$$

$$\begin{aligned}
 & \textcircled{91} \quad (X^6)^5 = \\
 & \quad X^{(6)(5)} = \\
 & \quad X^{30} =
 \end{aligned}$$

92.  $(-6a^4b^6c)^2 =$   
 $(-6)^1 a^4 b^6 c^1 =$   
 $\overset{1(2)}{(-6)} \overset{4(2)}{a} \overset{6(2)}{b} \overset{1(2)}{c} =$   
 $(-6)^2 a^8 b^{12} c^2 =$   
 $(-6)(-6) a^8 b^{12} c^2 =$   
 $36 a^8 b^{12} c^2 =$

93.  $\left(\frac{8^1 x^3 z^2}{y^3}\right)^2 =$

$\frac{8^{\overset{1(2)}{2}} x^{\overset{3(2)}{6}} z^{\overset{2(2)}{4}}}{y^{\overset{3(2)}{6}}} =$

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

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

$\frac{64 x^6 z^4}{y^6}$

$$(94) \quad b^2 b^3 b^5 =$$

$$b^{2+3+5} =$$

$$b^{10} =$$

$$(95) \quad \frac{4x^3 y^2 z}{xyz} =$$

$$\frac{4x^3 y^2 z^1}{x^1 y^1 z^1} =$$

$$4x^{3-1} y^{2-1} z^{1-1} =$$

$$4x^2 y^1 z^0 =$$

$$4x^2 y =$$

$$(96) \quad P(x) = x^2 + x + 3 \quad P(8)$$

$$P(8) = (8)^2 + (8) + 3$$

$$P(8) = (8)(8) + (8) + 3$$

$$P(8) = 64 + 8 + 3$$

$$P(8) = 72 + 3$$

$$P(8) = 75$$

$$(97) \quad Q(x) = 7x^2 - 1 \quad \text{Find } Q(-8)$$

$$Q(-8) = 7(-8)^2 - 1$$

$$Q(-8) = 7(-8)(-8) - 1$$

$$Q(-8) = 7(64) - 1$$

$$Q(-8) = 448 - 1$$

$$Q(-8) = 447$$

$$(98) \quad (9y^2 + 3y - 8) - (-9y + 2) =$$
$$9y^2 + 3y - 8 + 9y - 2 =$$

$$9y^2 + 12y - 10 =$$

$$(99) \quad (-9y^2 - 4y) + (7y^2 + y - 7) =$$
$$-9y^2 - 4y + 7y^2 + y - 7 =$$

$$-2y^2 - 3y - 7 =$$

$$(100) \quad (-5x^2 + 5x) + (-9x^2 - 6x - 4) =$$
$$-5x^2 + 5x - 9x^2 - 6x - 4 =$$

$$-14x^2 - x - 4 =$$

$$-14x^2 - x - 4 =$$

101

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

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

$$\begin{aligned} 102 \quad (3y+8)^2 &= \\ (3y+8)(3y+8) &= \\ 9y^2 + 24y + 24y + 64 &= \\ 9y^2 + 48y + 64 &= \end{aligned}$$

$$\begin{aligned} 103 \quad (3x-5)(5x+3) &= \\ 15x^2 + 9x - 25x - 15 &= \\ 15x^2 - 16x - 15 &= \end{aligned}$$

$$\begin{aligned} 104 \quad (x+6)(x^3 - 5x + 2) &= \\ x^4 - 5x^2 + 2x + 6x^3 - 30x + 12 &= \\ x^4 + 6x^3 - 5x^2 - 28x + 12 &= \end{aligned}$$

$$\begin{aligned} 105 \quad (a+4)(a^2 - 6a + 6) &= \\ a^3 - 6a^2 + 6a + 4a^2 - 24a + 24 &= \\ a^3 - 2a^2 - 18a + 24 &= \end{aligned}$$



106

$$(6x-7)(9x^2+5x+6)=$$

$$54x^3 + 30x^2 + 36x - 63x^2 - 35x - 42 =$$

$$54x^3 - 33x^2 + 1x - 42 =$$

$$54x^3 - 33x^2 + x - 42 =$$

107

$$(2x-8)(x+3)$$

$$2x^2 + 6x - 8x - 24 =$$

$$2x^2 - 2x - 24 =$$

108

$$5(y-9)(7y-1)=$$

$$5(7y^2 - 1y - 63y + 9) =$$

$$5(7y^2 - 64y + 9) =$$

$$35y^2 - 320y + 45 =$$

$$\textcircled{109} \quad (a-6)(a+6) =$$
$$a^2 + 6a - 6a - 36 =$$
$$a^2 - 36 =$$

$$\textcircled{110} \quad (2d-3b)^2 =$$
$$(2d-3b)(2d-3b) =$$
$$4d^2 - 6db - 6db + 9b^2 =$$
$$4d^2 - 12db + 9b^2 =$$

$$\textcircled{111.} \quad 4^{-2} =$$
$$\frac{1}{4^2} = \text{rewrite}$$
$$\frac{1}{4 \cdot 4} =$$

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

112) find GCF Primes 2, 3, 5, 7, ...

64, 80

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

$$= 16$$

$$2 \overline{) 64}$$

$$2 \overline{) 32}$$

$$2 \overline{) 16}$$

$$2 \overline{) 8}$$

$$2 \overline{) 4}$$

$$2 \overline{) 2}$$

1

$$2 \overline{) 80}$$

$$2 \overline{) 40}$$

$$2 \overline{) 20}$$

$$2 \overline{) 10}$$

$$5 \overline{) 5}$$

1

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

$$80 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5$$

113) factor GCF

$$4x + 20 =$$

$$4(x + 5) =$$

114)

$$x^2 + 8x + 15 =$$

$$(x + 3)(x + 5) =$$

15.1

3.5

possible

115

factor  
 $x^2 - 6x + 8 =$

~~1.8~~  
~~2.4~~ Possible

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

116

factor  
 $x^2 - 10x + 9 =$

9.1 Possible  
3.3

$(x-1)(x-9) =$

117

factor  
 $x^2 - 8x - 9 =$

~~9.1~~ Possible  
3.3

$(x+1)(x-9) =$

118

factor  
 $x^2 - 3x - 18 =$

18.1  
9.2 Possible  
6.3

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

(119) factor

$$x^2 + 4x - 21 =$$

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

$$\begin{array}{l} 21.1 \\ 3.7 \end{array}$$

(120) factor

$$x^2 - x - 90 =$$

$$(x + 9)(x - 10) =$$

$$\begin{array}{l} 90.1 \\ 45.2 \\ 15.6 \\ 10.9 \\ 30.3 \end{array} \quad \text{possible}$$

(121) factor

$$121x^2 - 81y^2 =$$

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

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

$$a^2 - b^2 = (a + b)(a - b) \quad \text{formula}$$

(122) Solve

$$(x-6)(x+9)=0$$

Let  $x-6=0$  OR  $x+9=0$

$$x-\cancel{6}+\cancel{6}=0+6 \quad \text{OR} \quad x+\cancel{9}-\cancel{9}=0-9$$

$$x=6$$

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

(123) Solve

$$x(x+3)=0$$

Let  $x=0$  OR  $x+3=0$

$$x+3-3=0-3$$

$$x=-3$$

(124) Solve

$$3x(x-8)=0$$

$$3x=0 \quad \text{OR} \quad x-8=0$$

$$\frac{3x}{3} = \frac{0}{3} \quad \text{OR} \quad x-\cancel{8}+\cancel{8}=0+8$$

$$x=0$$

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

125.

Solve

$$(6x+7)(5x-6)=0$$

$$\text{either } 6x+7=0 \quad \text{OR} \quad 5x-6=0$$

$$6x+7-x=0-7 \quad \text{OR} \quad 5x-\cancel{6}+\cancel{6}=0+6$$

$$6x=-7 \quad \text{OR} \quad 5x=6$$

$$\frac{6x}{6} = \frac{-7}{6} \quad \text{OR} \quad \frac{5x}{5} = \frac{6}{5}$$

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

$$\text{OR} \quad x = \frac{6}{5}$$

126.

Solve

$$x^2 - 11x + 10 = 0$$

$$(x-1)(x-10) = 0$$

$$\text{either } x-1=0 \quad \text{OR} \quad x-10=0$$

$$x-1+1=0+1 \quad \text{OR} \quad x-\cancel{10}+\cancel{10}=0+10$$

$$x=1$$

$$\text{OR} \quad x=10$$

10.1 Possible.  
2.5

(127)

Solve

$$x^2 - 10x + 16 = 0$$

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

Ans  $x-2=0$  OR  $x-8=0$

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

$$x=2$$

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

6.1  
8.2 Possible  
4.4

(128)

Solve

$$x^2 + 3x - 28 = 0$$

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

Ans  $x-4=0$  OR  $x+7=0$

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

$$x=4$$

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

28.1  
14.2 Possible  
4.7



129

Solve

$$x^2 - 6x = 0$$

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

either  $x=0$  OR  $x-6=0$

$$x-6+6=0+6$$

$$x=6$$

130

Solve

$$x^2 - 6x = 16$$

$$x^2 - 6x - 16 = 16 - 16$$

$$x^2 - 6x - 16 = 0$$

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

either  $x+2=0$  OR  $x-8=0$

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

$$x = -2$$

OR

$$x = 8$$

16.1 possible  
8.2  
4.4

131

$$\frac{6x}{y^2} \cdot \frac{4y}{7x} =$$

$$\frac{(2)(3)\cancel{x}}{y \cdot y} \cdot \frac{(2)(2)(y)}{7(\cancel{x})} =$$

$$\frac{(2)(3)\cancel{x}}{y \cdot y} \cdot \frac{(2)(2)(\cancel{y})}{7(\cancel{x})} =$$

$$\frac{24}{7y} =$$

132

$$\frac{40x^1}{8} \cdot \frac{x^8}{5x^4} =$$

$$\frac{40x^{1+8}}{40x^4} =$$

$$\frac{\cancel{40}x^9}{\cancel{40}x^4} =$$

$$x^{9-4} =$$
$$x^5 =$$

$$\textcircled{133.} \quad \frac{z^2 + 8z + 12}{z^2 + 3z - 10} \cdot \frac{z^2 + 2z - 8}{z^2 + 12z + 36} =$$

$$\frac{(z+2)(z+6)}{(z-2)(z+5)} \cdot \frac{(z-2)(z+4)}{(z+6)(z+6)} =$$

$$\frac{(z+2) \cancel{(z+6)}}{(z-2) \cancel{(z+5)}} \cdot \frac{\cancel{(z-2)}(z+4)}{\cancel{(z+6)}(z+6)} =$$

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

134

$$\frac{3y^4}{7y^6} \div \frac{15y^2}{14y^5} =$$

$$\frac{3y^4}{7y^6} \cdot \frac{14y^5}{15y^2} =$$

$$\frac{(3)(14)y^{4+5}}{(7)(15)y^{6+2}} =$$

$$\frac{\cancel{3}(\cancel{2})(\cancel{7})y^9}{\cancel{7}(\cancel{3})(5)y^8} =$$

$$\frac{2y^{9-8}}{5} =$$

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

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

135

$$\frac{4m}{3n} + \frac{2m}{3n} =$$

$$\frac{(4m) + (2m)}{3n} =$$

$$\frac{4m + 2m}{3n} =$$

$$\frac{6m}{3n} =$$

$$\frac{(2)(\cancel{3})m}{\cancel{3}n} =$$

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

136

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

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

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

137

$$\sqrt{4x^6} =$$

$$\sqrt[2]{4x^6} =$$

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

$$2x^3 =$$

138

$$\sqrt{x-1} = 7$$

$$(\sqrt{x-1})^2 = (7)^2$$

$$x-1 = 49$$

$$x-1+1 = 49+1$$

$$x = 50$$

139

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

$$\sqrt{(x+6)^2} = \pm\sqrt{4}$$

$$x+6 = \pm 2$$

$$x+6 = -2 \quad \text{OR} \quad x+6 = 2$$

$$x+6-6 = -2-6 \quad \text{OR} \quad x+6-6 = 2-6$$

$$x = -8$$

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