


M041093 Aleks Step 400
 05-21-18 Dist 8 Dist 1000
 Dist 1200

Page 4

1. 2.7513×1000
2. $23.751 \div 1000$
3. 2581.9 write in scientific notation
4. .0002915 write in scientific notation
5. $10[2 + (2-10) \div 2] + 3$
6. $2 + 3 \cdot 5^2$
7. $\frac{19}{7}$ write as mixed #
8. $2 + 8 \div 2 + 2 \cdot 5$
9. $-x + 5y$, $x=2$, $y=-10$
10. $(-2)^2 - 5^2 - |3-9|$
11. $\frac{25}{8} \div \frac{15}{4}$
12. $\frac{48}{50}$ simplify
13. $|-9+3| - 2$
14. 24 and 60 find GCF
15. 38% as fraction simplified
16. $\frac{3}{12} - \frac{1}{8}$
17. $-\frac{2}{3} \left(\frac{-5}{7} \right)$
18. 79.15% as decimal
19. 64% as fraction simplified
20. (10, -5) and (4, -2) find slope
21. $\frac{1}{8} - \frac{1}{3} \div \frac{2}{3}$
22. $-\frac{1}{12} + \frac{2}{3} \cdot \frac{2}{3}$
23. $y = -2x^2 - 3x + 10$, $x = -2$
24. $3x + 4y = 12$ find x and y -intercept
25. $\sqrt[3]{1000}$
26. $\sqrt{300}$
27. $\sqrt{-81}$
28. $\sqrt{-50}$
29. $-2\sqrt{-8}$
30. $\left(\frac{1}{64}\right)^{-\frac{5}{3}}$
31. $\left(\frac{3}{4}\right)^{-3}$
32. $\frac{3}{-4} + \frac{-1}{9}$
33.  find Dot
34. $2 + 2x = -20$
35. $\frac{3}{20} = \frac{x}{100}$
36. $-2x - 3 = -3(x - 1)$
37. $-\frac{2}{3}x = 600$
38. $2x - 2 = 4x + 6$
39. $2(x+1) = 2(x+1)$
40. $x - 2y = 4$ $y =$
41. $8x - 2y = 10$ $y =$
42. $5x + 2y = 10$ find slope y -intercept
43. $2(x+1) + 7x = 3(x+2)$
44. $A = P + PRT$ $R =$
45. $A = 7B + 2C$ $C =$
46. $\frac{a}{7} = m$ $a =$

47. $-y + 5 = x$

$y = 5 - x$

$\left(\frac{20x^3y^4}{15xy^7}\right)^2$

Page 2

48. $\sqrt{8x+4} = \sqrt{6x+10}$

70. $\sqrt{x-3} = 3$

49. $-4x \geq -8$

71. $(x-1)^2 = 9$

50. $-2x^2 - 3x + 1 - 4x^2 + 6x - 9$

72. $-2x(3-x) = 0$

51. $-2(3a - 5b + 9)$

73. $(2x+1)(5-x) = 0$

52. $(-2x^2 - x - 9) - (6x^2 + 5x - 10)$

74. $x^2 + 8x - 20 = 0$

53. $(x^8)^8$

75. $x^2 - 13x + 12 = 0$

54. $(x^{-2})^2$

76. $x^2 - 4x = 21$

55. $x \cdot x^3 \cdot x^4$

77. $x^2 = 6x + 16$

56. $(-2x)^2$

78. $5x^2 + 11x + 2 = 0$

57. $-2xy \cdot 3x^5 \cdot 2y^3$

79. $x^2 + 2x + 10 = 0$

58. $4x^4(1 - 5x^7)$

80. $x^2 + 2x + 26 = 0$

59. $(2a - 5b)(3a + 2b - 5)$

81. $x^2 + 2x - 4 = 0$

60. $(x-3)(x^2 - 2x - 3)$

82. $x + y = 500$
 $x - y = 200$

61. $(2x-3)(4x^2 - 6x + 9)$

83. $x + y = 12$
 $y = 2x$

62. $(4x+5y)(4x-5y)$

84. $2x + 3y = 5$
 $5x + 6y = 11$

63. $(5x-7y)^2$

64. $2(3x+5)(3x-5)$

65. $(-2x^3y)(5xy^4)$

66. $4xy^2(2xy - 5x^2y^2)$

67. $(-2xy^2)^3$

85. $\frac{4+x}{x-5} = 4$

68. $\frac{-25x^7y^9}{15xy^{11}}$

86. $|x+2| = 3$

87. $|x+2| < 8$

Maths 101/102/103/104/105/106/107/108/109/110
05-3-18

88. $|x-2| > 10$

Page 3

89. $y = 6$ graph

90. $y = -2x + 4$ graph

91. $y = -\frac{2}{3}x + 1$ graph

92. $3x + 4y = 12$ graph find x and y-intercepts

93. $f(x) = |x-3|$ graph

| x | f(x) |
|---|------|
| 2 | |
| 3 | |
| 4 | |

Math 0410 93 Aleks step
05-30-18

① $2.7513 \times 1000 =$
 $2751.3 =$ move decimal right 3 times

② $23.751 \div 1000 =$
 $.023751 =$ move decimal left 3 times

③ $2581.9 =$ write in scientific notation
 2.5819×10^3

④ $.0002915$ write in scientific notation
 2.915×10^{-4}

⑤ $10[2 + (2-10) \div 2] + 3 =$
 $10[2 + (-8) \div 2] + 3 =$
 $10[2 + (-4)] + 3 =$
 $10[2 - 4] + 3 =$
 $10[-2] + 3 =$
 $-20 + 3 =$

USE
PEMDAS

$-17 =$

$$\begin{aligned} 6) \quad & 2 + 3 \cdot 5^2 = \\ & 2 + 3(5)(5) = \\ & 2 + 3(25) = \\ & 2 + 75 = \end{aligned}$$

use
PEMDAS

5)

$$77 =$$

$$7) \quad \frac{19}{7} \text{ write as mixed number}$$

$$\begin{array}{r} 2 \frac{5}{7} \\ \downarrow \quad \overline{7 \overline{) 19}} \\ \quad \underline{-(14)} \\ \quad \quad 5 \text{ rem} \end{array}$$

$$2 \frac{5}{7} =$$

$$\begin{aligned} 8) \quad & 2 + 8 \div 2 + 2 \cdot 5 = \\ & 2 + 4 + 2 \cdot 5 = \\ & 2 + 4 + 10 = \end{aligned}$$

use
PEMDAS

$$6 + 10 =$$

$$16 =$$

$$9) \quad -x + 5y, \quad x = 2, \quad y = -10$$

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

$$-2 - 50 =$$

$$-52 =$$

10. $(-2)^2 - 5^2 - |3-9| =$

6

$$(-2)(-2) - (5)(5) - |-6| =$$

$$(4) - (25) - (6) =$$

$$4 - 25 - 6 =$$

$$-21 - 6 =$$

$$\underline{-27 =}$$

11. $\frac{25}{8} \div \frac{15}{4} =$ Primes 2, 3, 5, 7, ...

$$\frac{25}{8} \cdot \frac{4}{15} =$$

| | | |
|---------------|----------------|---------------|
| $\cancel{25}$ | $3\cancel{15}$ | $2\cancel{8}$ |
| $\cancel{5}$ | $\cancel{5}$ | $\cancel{4}$ |
| 1 | 1 | $\frac{2}{1}$ |

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

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

$$\frac{5}{6} \cdot 2$$

12 $\frac{48}{50}$ simplified

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

$$\frac{24}{25} =$$

Primes 2, 3, 5, 7...

$$\begin{array}{r} 2 \overline{)48} \\ 2 \overline{)24} \\ 2 \overline{)12} \\ 2 \overline{)6} \\ 3 \overline{)3} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)50} \\ 5 \overline{)25} \\ 5 \overline{)5} \\ 1 \end{array}$$

11

13 $| -9 + 3 | - 2 =$

$$| -6 | - 2 =$$

$$(6) - 2 =$$

$$6 - 2 =$$

$$4 =$$

14 24 and 60 find GCF Prime 2, 3, 5, 7...

$$GCF = \cancel{(2)}(\cancel{2})(3)$$

$$= 12$$

$$\begin{array}{r} 2 \overline{)24} \\ 2 \overline{)12} \\ 2 \overline{)6} \\ 3 \overline{)3} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)60} \\ 2 \overline{)30} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

$$24 = \overset{1}{(2)}(2)(2)(3)$$

$$60 = (2)(2)(3)(5)$$

$$GCF = (2)(2)(3)$$

15) 38% as fraction simplified

$$\frac{38}{100} =$$

Primes 2, 3, 5, 7, 11, 13, 17, 19

$$\begin{array}{r} 2 \overline{) 38} \\ 19 \overline{) 19} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 100} \\ 2 \overline{) 50} \\ 5 \overline{) 25} \\ 5 \overline{) 5} \\ 1 \end{array}$$

$$\frac{\cancel{(2)} \cancel{(19)}}{\cancel{(2)} \cancel{(2)} \cancel{(5)} \cancel{(5)}} = \frac{19}{50}$$

16)

$$\frac{3}{12} - \frac{1}{8} =$$

Primes 2, 3, 5, 7, ...

$$\begin{array}{r} 2 \overline{) 12} \\ 2 \overline{) 6} \\ 3 \overline{) 3} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \overline{) 2} \\ 1 \end{array}$$

$$\frac{3}{12} \left(\frac{2}{2} \right) - \frac{1}{8} \left(\frac{3}{3} \right) =$$

$$\frac{6}{24} - \frac{3}{24} =$$

$$\frac{6-3}{24} =$$

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

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

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

$$12 = 2 \cdot 2 \cdot 3$$
$$8 = 2 \cdot 2 \cdot 2$$
$$\text{LCD} = 2 \cdot 2 \cdot 2 \cdot 3$$
$$\text{(must)} = 24$$

$$2 \overline{) 24}$$

$$2 \overline{) 12}$$

$$2 \overline{) 6}$$

$$3 \overline{) 3}$$

$$1$$

17. $-\frac{2}{3} \left(\frac{-5}{7} \right) =$

$\frac{10}{21} =$

18. 79.15% as decimal

$0.7915 =$

19. 64% as fraction simplified

$\frac{64}{100} =$

Primas 2, 3, 5, 7...

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

$$\begin{array}{r} 2 \overline{)64} \\ \underline{2 \overline{)32}} \\ 2 \overline{)16} \\ \underline{2 \overline{)8}} \\ 2 \overline{)4} \\ \underline{2 \overline{)2}} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)100} \\ \underline{2 \overline{)50}} \\ 5 \overline{)25} \\ \underline{5 \overline{)5}} \\ 1 \end{array}$$

$\frac{16}{25} =$

20. (10, -5) and (4, -2) find slope

$x_1 \quad y_1 \quad x_2 \quad y_2$

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

$m = \frac{(-5) - (-2)}{(10) - (4)}$

$m = \frac{-5 + 2}{10 - 4}$

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

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

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

21. $\frac{1}{8} - \frac{1}{3} \div \frac{2}{3} =$

$\frac{1}{8} - \frac{1}{3} \cdot \frac{3}{2} =$

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

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

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

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

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

Use PEMDAS
LCD = 8

22. $-\frac{1}{12} + \frac{2}{3} \cdot \frac{2}{3} =$

$-\frac{1}{12} + \frac{4}{9} =$

$-\frac{1}{12} \left(\frac{3}{3}\right) + \frac{4}{9} \left(\frac{4}{4}\right) =$

$\frac{-3}{36} + \frac{16}{36} =$

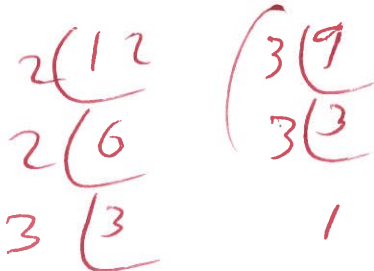
$\frac{-3+16}{36} =$

$\frac{13}{36} =$

Use PEMDAS

LCM = 36

Primes 2, 3, 5, 7



$12 = 2 \cdot 2 \cdot 3$

$9 = 3 \cdot 3$

LCM = 2 · 2 · 3 · 3 = 36

23 $y = -2x^2 - 3x + 10$, eval if $x = -2$

$$y = -2(-2)^2 - 3(-2) + 10$$

$$y = -2(-2)(-2) - 3(-2) + 10$$

$$y = -2(4) - 3(-2) + 10$$

$$y = -8 + 6 + 10$$

$$y = -2 + 10$$

$$y = 8$$

24 $3x + 4y = 12$ find x and y intercepts

find x -intercept let $y = 0$

$$3x + 4(0) = 12$$

$$3x + 0 = 12$$

$$3x = 12$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$x = 4$$

$$(4, 0)$$

x -intercept

find y -intercept let $x = 0$

$$3(0) + 4y = 12$$

$$0 + 4y = 12$$

$$4y = 12$$

$$\frac{4y}{4} = \frac{12}{4}$$

$$y = 3$$

$$(0, 3)$$

y -intercept

25 $\sqrt[3]{1000} =$

$\sqrt[3]{10^3} =$

$10^{3/3}$ = divide power

$10^1 =$

$10 =$

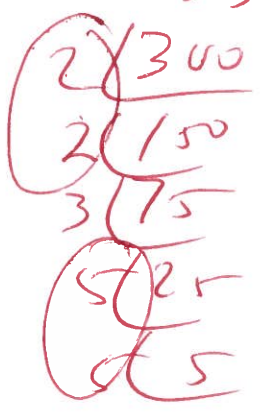
26 $\sqrt{300} =$

Primes 2, 3, 5, 7

$\sqrt{100 \cdot 3} =$

$\sqrt{100} \sqrt{3} =$

$10\sqrt{3} =$



$2 \cdot 2 \cdot 5 \cdot 5 = 100$

27 $\sqrt{-81} =$

$9i =$

- formulas
- $\sqrt{-1} = i$
 - $\sqrt{-4} = 2i$
 - $\sqrt{-9} = 3i$
 - $\sqrt{-16} = 4i$
 - $\sqrt{-25} = 5i$

28 $\sqrt{-50}$ Primi 2, 3, 5, 7... Formula

(15)

$$\sqrt{-25 \cdot 2} =$$

$$\begin{array}{r} 2 \overline{) 50} \\ \underline{40} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

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

$$\sqrt{-25} \sqrt{2} =$$

$$\begin{array}{r} 5 \overline{) 25} \\ \underline{25} \\ 0 \end{array}$$

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

$$5i\sqrt{2} =$$

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

29 $-2\sqrt{-8}$

Primi 2, 3, 5, 7...

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

$$\begin{array}{r} 2 \overline{) 8} \\ \underline{4} \\ 4 \\ \underline{4} \\ 0 \end{array}$$

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

$$-2(2i)\sqrt{2} =$$

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

30 $\left(\frac{1}{64}\right)^{-\frac{5}{3}} =$

$$4^{\frac{15}{3}} =$$

$$4^5 =$$

$$\left(\frac{1}{4^3}\right)^{-\frac{5}{3}} =$$

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

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

$$1024 =$$

$$4^{\frac{-3(-5)}{1}} =$$

31,

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

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

$$\frac{3^{1(-3)}}{4^{1(-3)}} =$$

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

$$\frac{4^3}{3^3} = \text{write}$$

$$\frac{(4)(4)(4)}{(3)(3)(3)} =$$

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

14

32.

$$\frac{3}{-4} + \frac{-1}{9} =$$

LCD = 36

(15)

$$\frac{-3}{4} + \frac{-1}{9} = \text{rewrite}$$

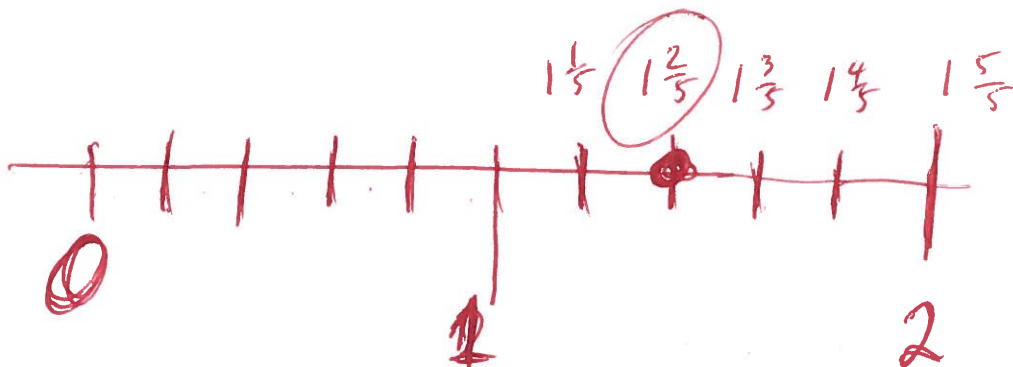
$$-\frac{3}{4} \left(\frac{9}{9} \right) + \frac{-1}{9} \left(\frac{4}{4} \right)$$

$$\frac{-27}{36} + \frac{-4}{36} =$$

$$\frac{-27-4}{36} =$$

$$\frac{-31}{36} =$$

33.



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

34

$$2 + 2x = -20$$

$$\cancel{x} + 2x - \cancel{x} = -20 - 2$$

$$2x = -22$$

$$\frac{2x}{2} = \frac{-22}{2}$$

$$x = -11$$

16

35

$$\frac{3}{20} = \frac{x}{100}$$

$$3(100) = 20(x) \quad \text{cross mult}$$

$$300 = 20x$$

$$\frac{300}{20} = \frac{20x}{20}$$

$$\begin{array}{r} 15 \\ 20 \overline{) 300} \\ \underline{-(20)} \\ 100 \\ \underline{-(100)} \\ 0 \text{ rem} \end{array}$$

$$15 = x$$

36

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

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

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

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

$$-2x + 3x = -\cancel{3}x + 6 + \cancel{3x}$$

$$1x = 6$$

$$x = 6$$

$$\textcircled{37} \quad \frac{-2x}{3} = 600$$

$$\frac{\cancel{3}}{-2} \left(\frac{-2x}{\cancel{3}} \right) = \frac{\cancel{3}}{-2} (600)$$

$$x = \frac{-3}{-2} \left(\frac{600}{1} \right)$$

$$x = \frac{-1800}{2}$$

$$x = -900$$

$$\textcircled{38} \quad 2x - 2 = 4x + 6$$

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

$$2x = 4x + 8$$

$$2x - 4x = 4x + 8 - 4x$$

$$-2x = 8$$

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

$$x = -4$$

$$39 \quad 2(x+1) = 2(x+1)$$

$$2x+2 = 2x+2$$

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

$$2x = 2x$$

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

$$0 = 0$$

The solution is all real numbers

40

$$x - 2y = 4$$

$$y =$$

$$x - 2y - x = 4 - x$$

$$-2y = 4 - x$$

$$\frac{-2y}{-2} = \frac{4}{-2} - \frac{1x}{-2}$$

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

OR

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

$$(41) \quad 8x - 2y = 10$$

$$y =$$

(19)

$$\cancel{8x} - 2y - \cancel{8x} = 10 - \cancel{8x}$$

$$-2y = 10 - 8x$$

$$\frac{-2y}{-2} = \frac{10}{-2} - \frac{8x}{-2}$$

$$y = -5 + 4x$$

OR

$$y = 4x - 5$$

$$(42) \quad 5x + 2y = 10 \quad \text{find slope \& y-intercept}$$

$$\cancel{5x} + 2y - \cancel{5x} = 10 - \cancel{5x}$$

$$2y = 10 - 5x$$

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

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

OR

$$y = -\frac{5}{2}x + 5$$



$$\text{slope} = m = -\frac{5}{2}$$

$$\text{y-intercept} = 5$$

for m and b

$$y = mx + b$$

Slope = m y-intercept = b

43 $2(x+1) + 7x = 3(x+2)$

$$2x + 2 + 7x = 3x + 6$$

$$9x + 2 = 3x + 6$$

$$9x + \cancel{2} - \cancel{2} = 3x + 6 - 2$$

$$9x = 3x + 4$$

$$9x - 3x = 3x + 4 - 3x$$

$$6x = 4$$

$$\frac{\cancel{6}x}{\cancel{6}} = \frac{4}{6}$$

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

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

44 $A = P + PRT$ $R =$

$$A - P = P + PRT - P$$

$$A - P = PRT$$

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

$$\frac{A - P}{PT} = R$$

(45) $A = 7B + 2C$ $C =$

$$A - 7B = 7B + 2C - 7B$$

$$A - 7B = 2C$$

$$\frac{A - 7B}{2} = \frac{2C}{2}$$

$$\frac{A - 7B}{2} = C$$

OR

$$\frac{A}{2} - \frac{7B}{2} = C$$

(46) $\frac{a}{7} = m$ $a =$

$$7\left(\frac{a}{7}\right) = 7(m)$$

$$a = 7m$$

(47) $-y + 5 = x$ $y =$

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

$$-y = x - 5$$

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

$$y = -x + 5$$

OR

$$y = -1x + 5$$

(26)

$$\textcircled{48} \quad \sqrt{8x+4} = \sqrt{6x+10}$$

$$(\sqrt{8x+4})^2 = (\sqrt{6x+10})^2$$

$$8x+4 = 6x+10$$

$$8x + \cancel{4} - \cancel{4} = 6x + 10 - 4$$

$$8x = 6x + 6$$

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

$$2x = 6$$

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

$$\textcircled{x = 3}$$

$\textcircled{49}$

$$-4x \geq -8$$

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

divide by negative from
the alligator around

$$\textcircled{x \leq 2}$$

$$\textcircled{\leftarrow \text{] } \underset{2}{}}$$

$$\textcircled{(-\infty, 2]}$$

$\textcircled{26}$

check

$$\sqrt{8(3)+4} = \sqrt{6(3)+10}$$

$$\sqrt{24+4} = \sqrt{18+10}$$

$$\sqrt{28} = \sqrt{28} \quad \checkmark$$

Good

50

$$-2x^2 - 3x + 1 - 4x^2 + 6x - 9 =$$

$$-6x^2 + 3x - 8 =$$

23

51

$$-2(3a - 5b + 9) =$$

$$-6a + 10b - 18 =$$

52

$$(-2x^2 - x - 9) - (6x^2 + 5x - 10) =$$

$$-2x^2 - x - 9 - 6x^2 - 5x + 10 =$$

$$-8x^2 - 6x + 1 =$$

53

$$(x^8)^8 =$$

$x^{(8)(8)}$ = multiply the powers

$$x^{64} =$$

54

$$(x^{-2})^2 =$$

$x^{(-2)(2)}$ = multiply the powers

$$x^{-4} =$$

OR

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

55

$$x \cdot x^3 \cdot x^4 =$$

$$x^1 \cdot x^3 \cdot x^4 =$$

$$1+3+4$$

$$x^8 =$$

$$x^8 =$$

56

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

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

$$4x^2 =$$

57

$$-2x^7y \cdot 3x^5 \cdot 2y^3 =$$

$$-2x^7y^1 \cdot 3x^5 \cdot 2y^3 =$$

$$-12x^{7+5}y^{1+3} =$$

$$-12x^{12}y^4 =$$

58. $4x^4(1-5x^7) =$
 $4x^4 - 20x^{4+7} =$
 $4x^4 - 20x^{11} =$

(25)

59. $(2a-5b)(3a+2b-5) =$
 $6a^2 + 4ab - 10a - 15ab - 10b^2 + 25b =$
 $6a^2 - 11ab - 10a - 10b^2 + 25b =$

60. $(x-3)(x^2-2x-3) =$
 $x^3 - 2x^2 - 3x - 3x^2 + 6x + 9 =$
 $x^3 - 5x^2 + 3x + 9 =$

61. $(2x-3)(4x^2-6x+9) =$
 $8x^3 - 12x^2 + 18x - 12x^2 + 18x - 27 =$
 $8x^3 - 24x^2 + 36x - 27 =$

62. $(4x+5y)(4x-5y) =$

$$16x^2 - 20xy + 20xy - 25y^2 =$$

$$16x^2 - 25y^2 =$$

26

63. $(5x-7y)^2 =$

$$(5x-7y)(5x-7y) =$$

$$25x^2 - 35xy - 35xy + 49y^2 =$$

$$25x^2 - 70xy + 49y^2 =$$

64. $2(3x+5)(3x-5) =$

$$2(9x^2 - 15x + 15x - 25) =$$

$$2(9x^2 - 25) =$$

$$18x^2 - 50 =$$

65. $(-2x^3y)(5xy^4) =$

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

$$-10x^{3+1}y^{1+4} =$$

$$-10x^4y^5 =$$

66. $4xy^2(2xy - 5x^2y^2) =$
 $4x^1y^2(2x^1y^1 - 5x^2y^2) =$

(21)

$$8x^{1+1}y^{2+1} - 20x^{1+2}y^{2+2} =$$

$$8x^2y^3 - 20x^3y^4 =$$

67. $(-2xy^2)^3 =$
 $(-2)^1x^1y^2)^3 =$

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

$$(-2)^3x^3y^6 =$$

$$(-2)(-2)(-2)x^3y^6 =$$

$$-8x^3y^6 =$$

$$\textcircled{68} \quad \frac{-25x^7y^9}{15xy^{11}} =$$

$$\frac{-25x^7y^9}{15x^1y^{11}} =$$

$$\frac{-1(\cancel{5})(\cancel{5})x^{7-1}}{(\cancel{3})(\cancel{5})y^{11-9}} =$$

Take little power from Big

$$\frac{-5x^6}{3y^2}$$

$$\textcircled{69} \quad \left(\frac{20x^3y^4}{15xy^7} \right)^2 =$$

$$\left(\frac{(2)(\cancel{2})(\cancel{5})x^3y^4}{(\cancel{3})(\cancel{5})x^1y^7} \right)^2 =$$

$$\left(\frac{(2)(\cancel{2})x^{3-1}}{3y^{7-4}} \right)^2 =$$

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

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

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

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

$$\frac{4 \cdot 4 x^4}{3 \cdot 3 y^6} =$$

$$\frac{16x^4}{9y^6}$$

$$70) \sqrt{x-3} = 3$$

$$(\sqrt{x-3})^2 = (3)^2$$

$$x-3 = 9$$

$$x - \cancel{3} + \cancel{3} = 9 + 3$$

$$x = 12$$

(29)

$$71) (x-1)^2 = 9$$

$$\sqrt{(x-1)^2} = \pm\sqrt{9}$$

$$x-1 = \pm 3$$

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

$$x - \cancel{1} + \cancel{1} = -3 + 1 \quad \text{OR} \quad x - \cancel{1} + \cancel{1} = 3 + 1$$

$$x = -2$$

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

$$72) -2x(3-x) = 0$$

$$\text{w} -2x = 0 \quad \text{OR} \quad 3-x = 0$$

$$\frac{-2x}{-2} = \frac{0}{-2} \quad \text{OR} \quad \cancel{3} - x - \cancel{3} = 0 - 3$$

$$x = 0$$

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

$$\text{OR} \quad \frac{-x}{-1} = \frac{-3}{-1}$$

$$x = 3$$

73 $(2x+1)(5-x)=0$

or $2x+1=0$ OR $5-x=0$

$2x+x-x=0-1$ OR $~~5-x-5=0-5~~$

$2x=-1$

OR

$-x=-5$

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

OR

~~$+x = -5$~~

~~$-x = -1$~~

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

OR

$x = 5$

74 $x^2 + 8x - 20 = 0$

$(x-2)(x+10) = 0$

$\begin{matrix} 20 \cdot 1 \\ 10 \cdot 2 \\ 4 \cdot 5 \end{matrix}$ Possible

or $x-2=0$ OR $x+10=0$

$x-x+2=0+2$ OR $x+10-10=0-10$

$x = 2$

OR $x = -10$

75 $x^2 - 13x + 12 = 0$

$(x-1)(x-12) = 0$

$\begin{matrix} 12 \cdot 1 \\ 6 \cdot 2 \\ 3 \cdot 4 \end{matrix}$ Possible

or $x-1=0$ OR $x-12=0$

$x-1+1=0+1$ OR $x-x+12=0+12$

$x = 1$

OR $x = 12$

76 $x^2 - 4x = 21$

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

$x^2 - 4x - 21 = 0$ (rewrite)

$(x - 3)(x + 7) = 0$

Let $x - 3 = 0$ OR $x + 7 = 0$

$x - 3 + 3 = 0 + 3$ OR $x + 7 - 7 = 0 - 7$

$x = 3$ OR $x = -7$

21.1
3.7 Possible (3)

77 $x^2 = 6x + 16$

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

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

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

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

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

rewrite
16.1
8.2 Possible
4.8

$$(78) \quad 5x^2 + 11x + 2 = 0$$

$$(5x+1)(x+2) = 0$$

$$\text{Let } 5x+1=0 \quad \text{OR} \quad x+2=0$$

$$5x+1-x=0-1$$

$$5x = -1$$

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

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

(5, 1) (2, 1)
possible
(3, 2)

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

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

(79) Use Quadratic formula

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

$$a=1, \quad b=2, \quad c=10$$

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

$$x = \frac{-(2) \pm \sqrt{(2)^2 - 4(1)(10)}}{2(1)}$$

$$x = -1 \pm 3i$$

$$x = \frac{-2 \pm \sqrt{4-40}}{2}$$

$$x = \frac{-2 \pm \sqrt{-36}}{2}$$

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

$$x = -1 - 3i$$

$$\text{OR } x = -1 + 3i$$

80. $x^2 + 2x + 26 = 0$
 $a=1, b=2, c=26$

Use Quadratic
Formula (33)

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

$$x = \frac{-(2) \pm \sqrt{(2)^2 - 4(1)(26)}}{2(1)}$$

$$x = \frac{-2 \pm \sqrt{4 - 104}}{2}$$

$$x = \frac{-2 \pm \sqrt{-100}}{2}$$

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

$$x = -1 \pm 5i$$

$$x = -1 - 5i$$

or

$$x = -1 + 5i$$

81. $x^2 + 2x - 4 = 0$ use Quadratic Formula

$a = 1, b = 2, c = -4$

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

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

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

$$x = \frac{-2 \pm \sqrt{20}}{2}$$

$$x = \frac{-2 \pm \sqrt{4 \cdot 5}}{2}$$

$$x = \frac{-2 \pm \sqrt{4} \sqrt{5}}{2}$$

$$x = \frac{-2 \pm 2\sqrt{5}}{2}$$

$$x = -1 \pm \sqrt{5}$$

$$x = -1 \pm \sqrt{5}$$

$$x = -1 - \sqrt{5}$$

$$x = -1 + \sqrt{5}$$

(34)

Primes 2, 3, 5, 7.

$$\begin{array}{r} 2 \cancel{) 20} \\ 2 \cancel{) 10} \\ 5 \cancel{) 5} \\ 1 \end{array}$$

82

$$x + y = 500$$

$$x - y = 200$$

$$2x + 0 = 700$$

$$2x = 700$$

$$\frac{2x}{2} = \frac{700}{2}$$

$$x = 350$$

Subst

$$x + y = 500$$

$$350 + y = 500$$

$$350 + y - 350 = 500 - 350$$

$$y = 150$$

$$\begin{array}{r}
 350 \\
 2 \overline{) 700} \\
 \underline{700} \\
 0
 \end{array}$$

350

$$(x, y) = (350, 150)$$

83

$$x + y = 12$$

$$y = 2x$$

Subst

$$x + (2x) = 12$$

$$x + 2x = 12$$

$$1x + 2x = 12$$

$$3x = 12$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$x = 4$$

$$y = 2x$$

$$y = 2(4)$$

$$y = 8$$

$$(x, y) = (4, 8)$$

84

$$2x + 3y = 5$$

$$5x + 6y = 11$$

(2)

$$\begin{array}{l} (2x + 3y = 5) \quad (-6) \\ (5x + 6y = 11) \quad (3) \end{array} \text{ mult}$$

$$-12x - 18y = -30$$

$$15x + 18y = 33$$

$$3x + 0 = 3$$

$$3x = 3$$

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

$$x = 1$$

Subst

$$2x + 3y = 5$$

$$2(1) + 3y = 5$$

$$2 + 3y = 5$$

$$2/ + 3y - 2 = 5 - 2$$

$$3y = 3$$

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

$$y = 1$$

$$(x, y) = (1, 1)$$

85 $\frac{4+x}{x-5} = 4$

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

$1(\widehat{4+x}) = 4(\widehat{x-5})$ cross mult

$4 + 1x = 4x - 20$

~~$4 + 1x - 4 = 4x - 20 - 4$~~

$1x = 4x - 24$

~~$1x - 4x = 4x - 24 - 4x$~~

$-3x = -24$

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

$x = 8$

32

check

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

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

$\frac{12}{3} = 4$

$4 = 4$ ✓

Good

86 $|x+2| = 3$

formula

$|x| = a$

$x = -a$ or $x = a$

sent

$x+2 = -3$ or

$x+2 = 3$

$x+2-2 = -3-2$ or

~~$x+2-x = 3-2$~~

$x = -5$ or

$x = 1$

$$87 \quad |x+2| < 8$$

$$-8 < x+2 < 8$$

$$-8-2 < x+2-2 < 8-2$$

$$-10 < x < 6$$



$$(-10, 6)$$

Formula

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

$$88 \quad |x-2| > 10$$

$$x-2 < -10 \quad \text{OR} \quad x-2 > 10$$

$$x-2+x < -10+2 \quad \text{OR} \quad x-2+x > 10+2$$

$$x < -8$$

$$\text{OR} \quad x > 12$$

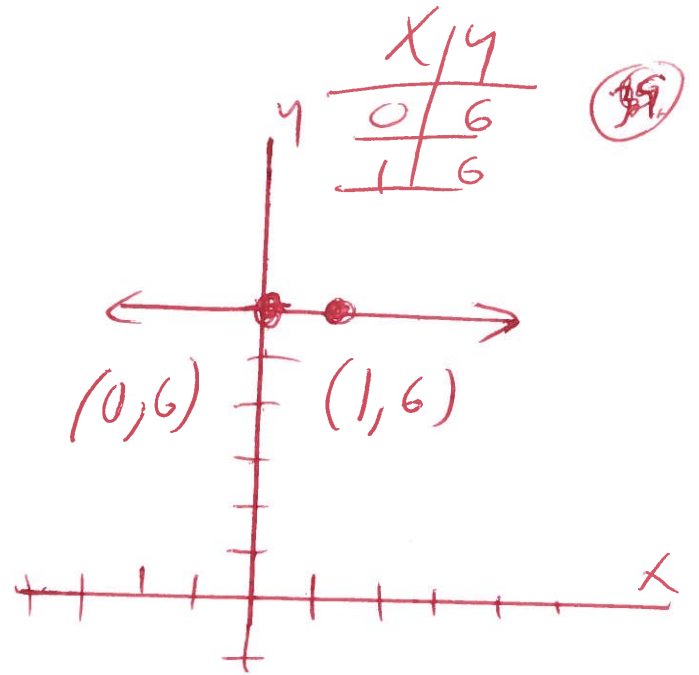


$$(-\infty, -8) \cup (12, \infty)$$

Formula

$$|x| > a$$
$$x < -a \quad \text{OR} \quad x > a$$

89) $y = 6$ graph



90) $y = -2x + 4$ graph

$$y = -2(0) + 4$$

$$y = 0 + 4$$

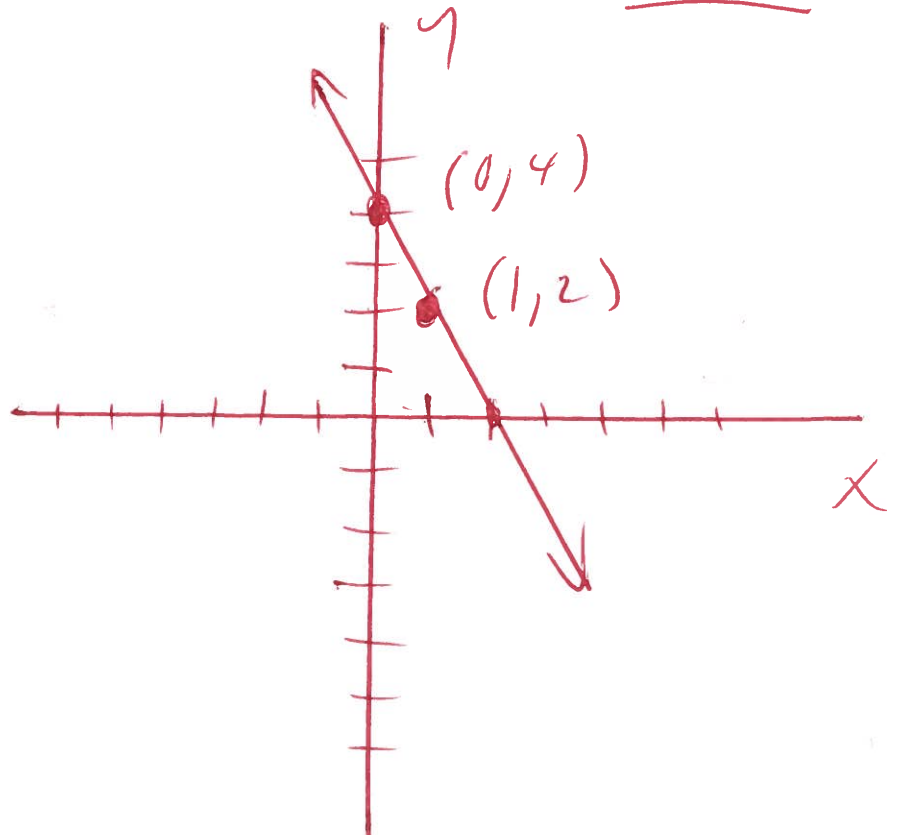
$$y = 4$$

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

$$y = -2 + 4$$

$$y = 2$$

| X | Y |
|---|---|
| 0 | 4 |
| 1 | 2 |



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

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

$$y = 0 + 1$$

$$y = 1$$

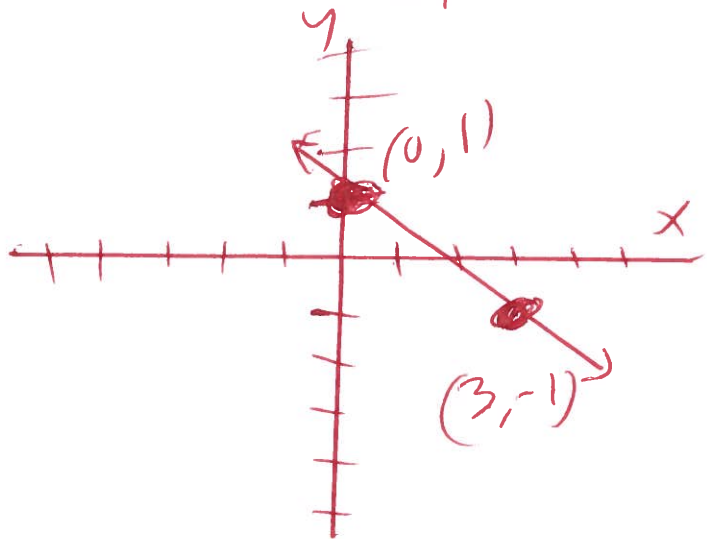
$$y = -\frac{2}{3}(3) + 1$$

$$y = -2 + 1$$

$$y = -1$$

| X | y |
|---|----|
| 0 | 1 |
| 3 | -1 |

40



92) $3x + 4y = 12$ graph for x and y-intercept

find x-intercept let $y = 0$

$$3x + 4(0) = 12$$

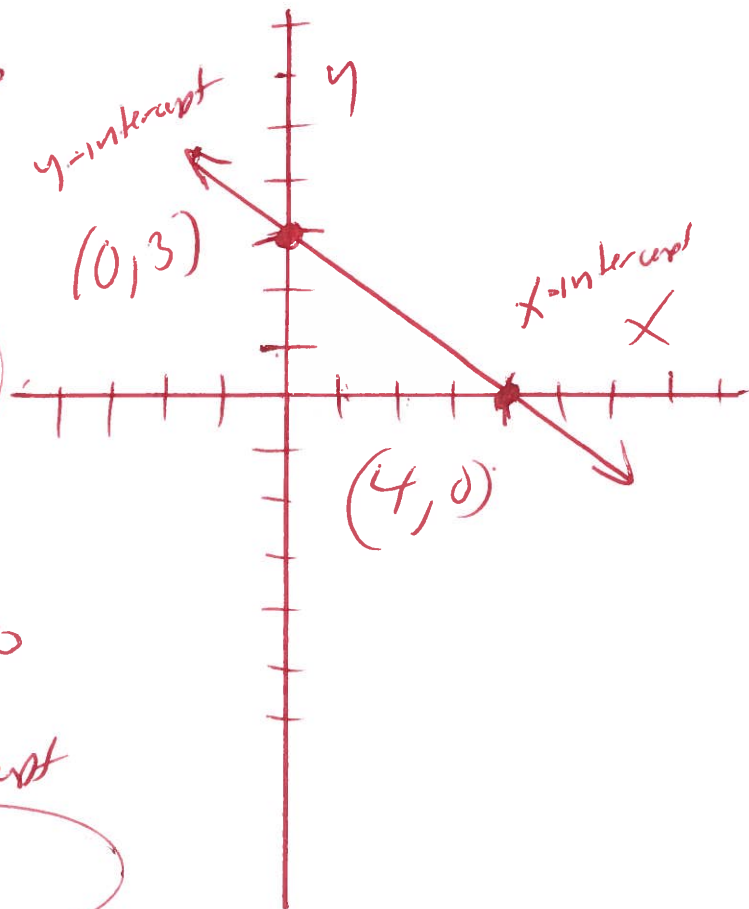
$$3x + 0 = 12$$

$$3x = 12$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$x = 4$$

x-intercept
 $(4, 0)$



find y-intercept let $x = 0$

$$3(0) + 4y = 12$$

$$0 + 4y = 12$$

$$4y = 12$$

$$\frac{4y}{4} = \frac{12}{4}$$

y-intercept

$(0, 3)$

$$y = 3$$

93 $f(x) = |x-3|$ graph

| x | f(x) |
|---|------|
| 2 | 1 |
| 3 | 0 |
| 4 | 1 |

(41)

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

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

$$f(2) = 1$$

$$f(3) = |3-3|$$

$$f(3) = |0|$$

$$f(3) = 0$$

$$f(4) = |4-3|$$

$$f(4) = |1|$$

$$f(4) = 1$$

