Prerequisite – Review of Math 1 , 2 , and 3 Topics & Concepts

Review of Math 1 Topics: Example 1

$y = mx + b \rightarrow m = \text{slope}\quad b = y\text{-int}$

a.) Solve for x:

$5x - 3(x - 4) = 6(x + 8)$

$5x - 3x + 12 = 6x + 48$

$2x + 12 = 6x + 48$

$-6x \quad -12 \quad -6x \quad -12$

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

$x = -9$

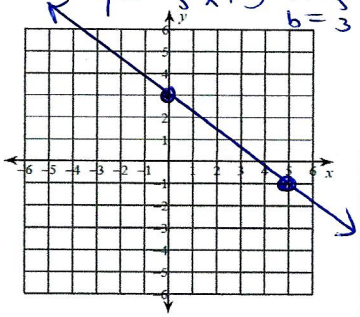
b.) Graph the line:

$4x + 5y = 15$

$-4x \quad -4x$

$\frac{5y}{5} = \frac{-4x + 15}{5}$

$y = -\frac{4}{5}x + 3 \quad m = -\frac{4}{5} \quad b = 3$



c.) Solve the system:

① $14x + 6y = -2$

$2(7x - 5y = -17)$

$14x + 6y = -2$

$-\ 14x - 10y = -34$

$\frac{16y}{16} = \frac{32}{16}$

$y = 2$

②

$7x - 5(2) = -17$

$7x - 10 = -17$

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

$x = -1$

$(-1, 2)$

d.) Alex and Beth are in the same math class. Beth's test average is 4.5 lower than Alex's. What did Beth make on her Test # 2 and # 4?

Test #	1	2	3	4
Alex	87	96	72	92
Beth	94	x	81	x

① Alex Avg $= \frac{87 + 96 + 72 + 92}{4} = \frac{347}{4} = 86.75$

Beth Avg $= 86.75 - 4.5 = 82.25$

② $\left(\frac{94 + x + 81 + x}{4} = 82.25\right)4$

$2x + 175 = 329$

$\frac{2x}{2} = \frac{154}{2} \rightarrow x = 77$

Review of Math 2 Topics: Example 2

a.) Solve for x (using factoring):

$3x^2 + 10x - 5 = 3$

$-3 \quad -3$

$3x^2 + 10x - 8 = 0$

$a \quad b \quad c$

$ac = 24$

$12 \cdot -2 = 24 \quad 12 + -2 = 10 = b$

$\rightarrow (x + \frac{12}{3})(x - \frac{2}{3})$

$(x + 4)(3x - 2) = 0$

$x + 4 = 0 \qquad 3x - 2 = 0$

$x = -4 \qquad \frac{3x}{3} = \frac{2}{3}$

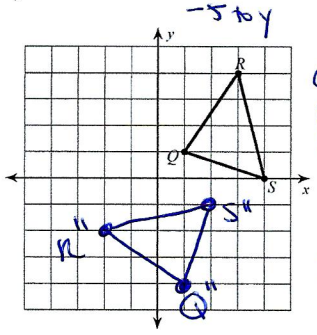
$x = \frac{2}{3}$

b.) Perform following geometric transformations for graph below: $(x, y) \rightarrow (-y, x)$

1.) Rotate 90° counter clockwise

2.) Translate down 5 and right 2

-5 to y $\quad +2$ to x



	x	y
Q	1	1
R	3	4
S	4	0

	x	y
R	−1	1
S	−4	3
Q	0	4

	x	y
R	1	−4
S	−2	−2
Q	2	−1

c.) Given: RS is midseg of Δ JKL

Find: length of KS

2(midseg) = parallel side

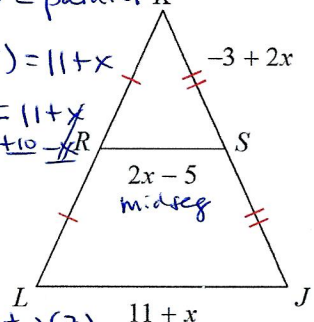
① $2(2x - 5) = 11 + x$

$4x - 10 = 11 + x$

$-x \quad +10 \quad +10 \quad -x$

$3x = 21$

$x = 7$



② $\overline{KS} = -3 + 2(7)$

$\overline{KS} = 11$

Review of Math 3 Topics: Example 3

a.) Find the zeros to polynomial:

$P(x) = 2x^3 + 5x^2 - 8x - 20$

$2x^3 + 5x^2 - 8x - 20 = 0$

(since 4 terms → try grouping)

$(2x^3 + 5x^2)(-8x - 20) = 0$

$x^2(2x + 5) - 4(2x + 5) = 0$

$(2x + 5)(x^2 - 4) = 0$

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

$2x + 5 = 0 \qquad x + 2 = 0 \qquad x - 2 = 0$

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

b.) Find the inverse function:

$y = e^{3x+6} - 7$

$x = e^{3y+6} - 7$

$+7 \qquad +7$

$e^{3y+6} = x + 7$

$\ln e^{3y+6} = \ln(x + 7)$

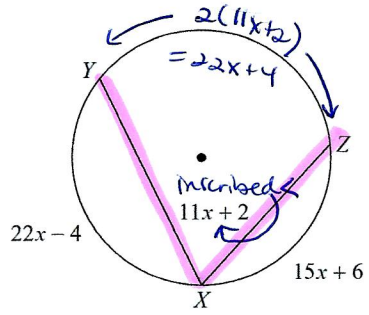
$3y + 6 = \ln(x + 7)$

$-6 \qquad -6$

$\frac{3y}{3} = \frac{\ln(x + 7) - 6}{3}$

$f^{-1}(x) = \frac{1}{3}\ln(x + 7) - 2$

c.) Find measure of arc XY:



① $22x - 4 + 22x + 4 + 15x + 6 = 360$

$59x + 6 = 360$

$59x = 354$

$x = 6$

② $\overset{\frown}{XY} = 22(6) + 4$

$\overset{\frown}{XY} = 128°$