

Factor each of the following. Show all work.		
1) $x^2 - 3x + 2$	2) $3x^2 + x - 14$	3) $9x^2 + 10x + 1$
Solve by Completing the Square		
4) $x^2 + 8x - 20 = 0$	5) $x^2 + 5x + \frac{5}{4} = 0$	
Solve for x.		
6) $x^2 = x + 12$	7) $ 7x - 5 - 30 = 0$	8) $\sqrt{2x + 8} + 15 = 0$
9) $\sqrt{x - 2} - 8 = 0$	10) $-2x^2 - 4x + 2x^3 = 0$	11) $4(x + 3) - 3 = 2(4 - 3x) - 4$
True or False. If false fix the problem.		
12) $\frac{21x}{4} - \frac{(y + 5)}{2} = \frac{21x - 2y + 5}{4}$	13) $\frac{a}{4} + \frac{8}{b} = \frac{a + 8}{4 + b}$	
14) Find the midpoint and distance between the two points. Give the distance as a decimal rounded to 2 places. $A(5, -8)$ $B(-4, 2)$	15) A zip line goes from the top of a tower into a lake. The tower is 50 feet tall and the point where the line enters the lake is 150 feet away. How long is the zip line? Round to the nearest foot.	

Find the x- and y- intercepts		
16) $y^2 = x + 1$	17) $y = 6x^2 + x - 2$	18) $y = 12x^2 + 5x - 2$
19) $y = 6x^2 - 11x + 4$	20) $y = 3x + 5 $	21) $y = 8x - 7 $
Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.		
22) $y > 4, x < 8$	23) $y < -2, x < -5$	24) $y > 4, x > 12$
25) An airplane flies directly from San Francisco to San Diego, which is 400 miles south and 300 miles east. How far does the plane fly?	26) Write the equation of the circle in standard form given that two endpoints of a diameter are $(-1, 4)$ and $(3, -10)$	
27) Identify the center and radius of the circle in #26. Sketch the circle.	28) Complete the square to write the equation of the circle in standard form. Identify the center and radius then sketch the circle. $x^2 - 20y - 20 + 2x + y^2 = 0$	