There are 20 questions worth 5 points each. Show all your work in a neat and organized fashion to get full/ partial credit.

Solve the quadratic equation $x^2 + 6x - 1 = 0$ by

1. completing squares.  
2. using the quadratic formula.

3. Multiply $(8 - 3i)(2 + 4i)$. Leave your answer in the form $a + bi$.

4. Given $A = \{x | x \geq -1\}$, $B = \{x | x < 2\}$, express in interval notation
   a. $A \cap B$  
   b. $A \cup B$

Solve the following (5-12)

5. $\frac{4+x}{2} - 3 = -\frac{x}{10}$

6. $\frac{1}{3}(x + 2) \geq \frac{1}{6}(3x - 3)$
7. \(2|3x - 4| + 7 = 9\)

8. \(\sqrt{t} + 7 = t - 5\)

9. \(-16 \leq -3x - 4 < 2\) and graph your solution.

10. \(\frac{3x}{x+2} - \frac{5}{x-4} = \frac{2x^2 - 14x}{x^2 - 2x - 8}\)

11. \(2(t - 3)^3 = 16\)

12. \(-24 \leq 8p \leq 24\). (Express your answer in absolute value notation)
13. Write the solution set of $7m < -14$ or $7m > 14$ in set builder notation.

Refer to 14 and 15. Given the points $(-2, 7)$ and $(-4, 11)$, find

14. The exact distance between the points.

15. The midpoint of the line segment whose endpoints is the given points.

16. For $-2x + 4y = 12$, find
   a. The x-intercept
   b. The y-intercept.
17. Given \((x - 3)^2 + (y + 4)^2 = 36\), find
   a. The center. b. The radius.

18. Write the equation of the circle, \(x^2 + y^2 - 8x + 2y - 8 = 0\), in standard form.

19. You borrowed an amount of $5000 from your grandma at the annual interest rate of 3%. Find the interest at the end of three years.

20. Write an equation that relates the sides of the given right triangle. Do not solve.