Advanced Math Week #3
Distributed Practice
Due Monday February 15th

One point will be awarded for the correct answer. Two points will be awarded for writing down the necessary work to solve the problem. You are not required to write an explanation for any of the problems, however, if you believe it is not possible to show any work, you may need to write a brief explanation depicting how you arrived at your answer. You must answer all questions.

1. Solve the inequality $(x-3)(x+2) > 0$

2. Solve for all values of θ in the interval $0° \le \theta \le 360°$ given that $\cos 3\theta = \frac{1}{2}$

3. Determine the slope of the line tangent to the function $f(x) = x^3 - 2x^2 + 3x - 5$ at the point (4, f(4)).

4. Convert 55° to radians.

5. A certain radioactive isotope has a half-life of 37 years. How many years would it take 100 grams of the material to decay to 64 grams? Round your answer to the nearest month.

6. Determine the length of circle's arc given that the circle has a radius of 6 feet, and the angle that forms the arc possesses a measure of 20°.

7. Verify that $\cot\theta \cdot \sec\theta \cdot \sin\theta = 1$