Exam 1 Review

Due 2/18/09 at the beginning of class. The following questions are similar to those you will encounter on the exam. Complete and show your work on a separate sheet of paper.

1. Evaluate each of the following:
   a. \(3 - 6 \div 3 - 4(1 - 2)^5\)
   b. \(\frac{-4 \cdot (8 - 5) + (-4) \cdot 5}{-4 \cdot (7 - 2)}\)
   c. \(\frac{-7 \cdot 9^2 + 27}{\sqrt{9 - 12 \cdot (5 - 9)}}\)
   d. \([18 \div 3]^2 \div 9]^2\)

2. Evaluate:
   a. \(3x^2 + 4x - 8\) when \(x = 2\)
   b. \((x + y)^2 - (x - y)^2\) when \(x = 3\) and \(y = 2\)

3. Simplify completely:
   a. \((2x^4y^{-4})(7x^{-2}y^3)\)
   b. \((\frac{x^2a^{-3}}{p^3q^{-1}})^2\)

4. Express each value in scientific notation:
   a. 25,000,000
   b. 6,000
   c. (25,000,000)(6,000)

5. Solve each equation:
   a. \(6x - 9 = 3 \cdot (x + 4)\)
   b. \(3 \cdot [2x - (4x - 6)] = 3 \cdot (x - 3)\)
   c. \(\frac{2}{3}t + 3 = \frac{1}{6}t - 1\)
   d. \(\frac{1}{5}(7 - x) = x\)

6. Solve each inequality and express the solution on the number line and in interval notation.
   a. \(8z + 6 > 7z + 3\)
   b. \(-2c - 3 \leq -3c - 4\)
   c. \(\frac{1}{2} < \frac{-x + 2}{2} < 8\)
   d. \(3x - 8 \leq 4\) or \(-x + 4 < -6\)

7. Find the solution set:
   a. \(|7 - 3x| = 4\)
   b. \(|\frac{3x - 2}{4}| \leq 1\)
   c. \(|\frac{1}{2}x + 2| > 3\)
   d. \(|7x - 3| \geq 0\)

8. Linda is at a restaurant and only has $20. She must pay 7% sales tax and wishes to leave a 15% tip on the total bill (meal plus tax), what is the maximum price of lunch she can order?

9. Bob and Tom are excited to try out their new walkie-talkies. The box says the walkie talkies will work up to 140 miles apart. To test this, they both jump on their bikes and ride in opposite directions. Bob pedals at 15 miles per hour and Tom pedals at 20 miles per hour. How long will it take them to reach the advertised maximum walkie-talkie distance.

10. A beverage wholesaler wants to create a new punch. He will mix fruit juice worth $2 a gallon and rum worth $7 a gallon. He wants to obtain 100 gallons of punch worth $4 a gallon. How much of each beverage should he use?