EMT111 Practice Problems

Inequalities and Simultaneous Equations

September 16, 2010

1. Solve each inequality. Write the solution set in interval notation.

   (a) $4x - 5 > 19$

   (b) $5x - 2 \leq 7x - 5$

   (c) $5 - 5x \leq 1 + 2(5 - x)$

   (d) $-9 \leq \frac{2x}{3} - 7 < 5$

   (e) $-3 \leq 5 - x \leq 5$

   (f) $x^2 - 7x + 10 \geq 0$

   (g) $x^2 + 3x - 5 \leq 5$

   (h) $\frac{4}{2-x} \leq 1$

   (i) $\frac{2}{x} < \frac{3}{x-4}$

   (j) $\frac{x-3}{2x+5} \geq 1$

   (k) $8x^3 - 4x^2 - 2x + 1 < 0$

   (l) $-2 < \frac{1-3x}{-2} < 7$

   (m) $|2x - 1| < 1$

   (n) $|x - 5| > |x + 3|$

2. For each problem write a system of equations and then solve.

   (a) The sum of two numbers is -16, and their difference is 8. Find the numbers.

   (b) Tickets for a concert were sold to adults for \$3000 and to students for \$2000. If the total receipts were \$824,000 and twice as many adult tickets as student tickets were sold, then how many of each were sold?

   (c) Canola oil is 7% saturated fat, and corn oil is 14% saturated fat. Crisco sells a blend, Crisco Canola and Corn Oil, which is 11% saturated fat. How many gallons of each type of oil must be mixed to get 280 gallons of this blend?

   (d) John has 35 coins consisting of \$10 and \$5 coins. If the value of the coins is \$330, then how many of each type does he have?

   (e) Two hundred people were on a charter flight to Las Vegas. Some paid \$200 for their tickets and some paid \$250. If the total revenue for the flight was \$44,000 then how many tickets of each type were sold?