Exam 1 Practice
Math 135: Intermediate Algebra, Fall 2007
October 23, 2007

Useful Formulas

$$\begin{aligned} \text{midpoint} &= \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right) \\ d &= \sqrt{(x_2-x_1)^2+(y_2-y_1)^2} \\ m &= \frac{y_2-y_1}{x_2-x_1} \\ m_{\text{perp}} &= -\frac{1}{m} \end{aligned}$$

Problems

1. Solve: $2(3x-5) = \frac{1}{2} - x$.

2. A metallurgist has two alloys, one containing 90% iron and 10% cobalt, and another containing 60% iron, 30% cobalt, and 10% nickel. How much of each should he mix to make 10 tons of an alloy that is 80% iron?

3. Solve, write the answer in interval notation, and graph the answer on a number line: $2x-4 < -5$ or $1-2x < 3$.

4. A student taking an algebra class has averages of 82, 89, 95, and 98 on four of five tests. What range of scores on the final test will give him an average of 85 to 95 for the class?

5. Graph $4x = -2y + 3$.

6. Find the slope and intercepts of the line $3x - 2y = 8$.

7. Find the equation of the line perpendicular to $y = 2x - 4$ passing through the point $(1, -2)$.

8. On the coordinate system used on a city map, city hall is at $(2, 5)$ and the stock exchange is at $(-1, 1)$. Find the distance from city hall to the stock exchange, and the location of the building that is halfway between them.