Math 110 Review Answers
Here are answers to some of the review problems (note that some are incomplete).
Note: Don’t assume these answers are 100% correct.

Linear equations and inequalities, one variable:

1. Solve each equation.
   (a) Solution set: \( \mathbb{R} \)
   (c) Solution set: \( \left\{ \frac{5}{18} \right\} \)
   (b) Solution set: \( \emptyset \)
   (d) Solution set: \( \left\{ -\frac{28}{5} \right\} \)

2. Solve for \( x \).
   (a) \( x = \frac{2}{2w - 1} \)
   (b) \( x = \frac{5 - c}{5} \) or \( x = 1 - \frac{c}{5} \)

3. Solve each inequality. Give the solution set both graphically and using interval notation.
   (a) Solution set: \( (-\infty, \frac{11}{2}) \)
   (d) Solution set: \( \left[ -\frac{17}{2}, \frac{13}{2} \right) \)
   (b) Solution set: \( [48, \infty) \)
   (e) Solution set: \( \emptyset \)
   (c) Solution set: \( (-\infty, \infty) \)
   (f) Solution set: \( (-\infty, 1) \cup (10, \infty) \)

Word Problems: Solve each word problem. You may use either one variable and one equation, or two variables and two equations to set up the problem.

(a) 15 pounds
(b) 2 meters and 1.5 meters
(c) 17.5 and -12.5
(d) 15 miles

Linear equations in two variables

4. Write the equation of each line in (i) slope-intercept form and (ii) standard form with integral coefficients.
   (a) \( 7x - 3y = 21 \)
   (d) \( x + y = 3 \)
   (b) \( 2x + 3y = 0 \)
   (e) \( x = 2 \)
   (c) \( x - 3y = 9 \)
   (f) \( 4x + 7y = 30 \)

5. Graph each equation.
(a) $5x - 3y = 7$
(b) $y - 3 = 10$
(c) $7x = 21$
(d) $4x + 5y = 10$

6. Graph the solution set to each linear inequality.

(a) $y > 3x - 2$
(b) $y \leq 2x + 3$
(c) $-5x > 3$
(d) $3y > 9$ and $y - x \leq 5$
(e) $3x + 2y \geq 8$ or $3x - 2y < 6$
(f) $1 \leq x < 3$ and $2 < y \leq 5$