

# MIDTERM 1

Math 110 (Doherty)  
January 27, 2007

Name \_\_\_\_\_

1. (7 pts each) Solve each equation and state the solution set. Also state whether the equation is inconsistent, conditional, or an identity.

(a)  $\emptyset$  Inconsistent

(b)  $\left\{\frac{13}{19}\right\}$  Conditional

(c)  $\mathbb{R}$  Identity

(d)  $\{-4\}$  Conditional

2. (5 pts each) Solve for the indicated variable.

(a)  $x = \frac{2y - 5}{z - 1}$  or  $x = \frac{5 - 2y}{1 - z}$

(b)  $x = \frac{10}{5a - 2}$  or  $x = \frac{-10}{2 - 5a}$

3. (7 pts each) Solve each linear inequality in one variable. Give the solution set both graphically and using interval notation.

(a)  $\left(-\frac{7}{2}, \frac{3}{2}\right]$

(b)  $(-\infty, \infty)$

(c)  $\emptyset$

4. 15 pounds.

5. (6 pts each) Write the equation of each line in (i) slope-intercept form and (ii) standard form with integral coefficients. Graph each on the axes provided.

(a) Slope-intercept:

$$y = -\frac{2}{3}x - \frac{8}{3}$$

Standard form:

$$2x + 3y = -8$$

(b) Slope-intercept:

$$y = -\frac{5}{3}x + \frac{2}{3}$$

Standard form:

$$5x + 3y = 2$$

6. (8 pts each) Graph the solution set to each system of linear inequalities on the axes provided.

(See me if you have trouble graphing these.)