

Math 1010 - Exam 2

University of Utah

Fall 2009

Name: _____

1. Graph the following functions, and state the domain and range of each.

(a) $y = 2x - 3$ (3 points)

Domain (2 points):

Range (2 points):

(b) $y = |x - 1|$ (4 points)

Domain (2 points):

Range (2 points):

2. Graph the following lines, and give their equations in *slope-intercept form*.

(a) The line through the points $(1, 2)$ and $(2, 5)$. (5 points)

Equation in slope-intercept form (5 points):

(b) The line through the point $(3, 5)$ with slope $m = -2$. (5 points)

Equation in slope-intercept form (5 points):

3. Graph the inequality $y < x + 3$. (5 points)

4. Are the following lines, given in general form, parallel, perpendicular, or neither. Explain why. (5 points)

$$\begin{array}{rcl} 2x & + & 3y = 5 \\ 3x & + & 2y = -5 \end{array}$$

5. Solve the following systems of equations using any method you choose. If you use the graphical method, make sure to check and verify your answer. (6 points each)

(a)
$$\begin{array}{rcl} 2x & - & 5y = 20 \\ 4x & - & 5y = 40 \end{array}$$

(b)
$$\begin{array}{rcl} x & + & y = 2 \\ x & - & 4y = 12 \end{array}$$

$$\begin{array}{rclcl} \text{(c)} & 12x & - & 14y & = & 15 \\ & 18x & - & 21y & = & 10 \end{array}$$

$$\begin{array}{rclcl} \text{(d)} & 4x & - & 3y & = & 25 \\ & -3x & + & 8y & = & 10 \end{array}$$

6. Write the following numbers in scientific notation.

(a) 0.0000000381. (3 points)

(b) 139,500,000. (3 points)

(c) $(6.5 \times 10^6)(2 \times 10^4)$. (4 points)

7. Perform the following calculations on polynomials.

(a) $(4x^3 - 2x^2 + 7x + 5) + (3x^2 + 8)$. (3 points)

(b) $4x(3x^2 - 2x + 8)$. (4 points)

(c) $(2x - 7)(3x^2 + 4x + 1)$. (4 points)

8. The total cost of 8 gallons of regular unleaded gasoline and 12 gallons of premium unleaded gasoline is \$71.84. Premium unleaded gasoline costs \$0.17 more per gallon than regular unleaded. Find the price per gallon for each grade of gasoline. (10 points)