_____ / 41 total points

Test #1 Name: _____

Math 71A, Prof. Beydler Wednesday, March 23, 2016

Directions: Show all work. No books or notes. A **scientific calculator** is allowed. Your desk and lap must be clear (no phones, notebooks, etc.). Write your answers in the indicated places, or box your answers. Good luck!

1. (1 point) Is the relation $\{(5,5),(2,0),(3,0),(4,7)\}$ a function?

   Yes No (circle one)

2. (2 points) Solve $A = P + Prt$ for P.

   $P =$ _____

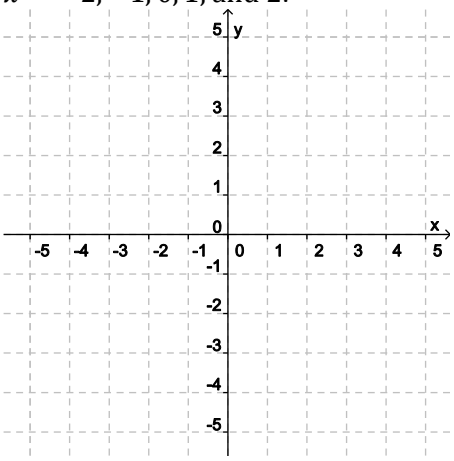
3. (2 points) Simplify: $(5a^2b^{-4}c)(-2ab^3c^{-2})$

   Answer: _____

4. (2 points) Given that $f(x) = \frac{2-x}{-3x+4}$ find $f(a+2)$. Simplify your answer.

   $f(a+2) =$ _____

5. (3 points) Graph the equation $y = x^2 - 2$. Be sure to plot the points on the graph at $x = -2, -1, 0, 1, \text{and } 2$.



6. (3 points) Solve the following equation (that is, write the solution set). Also, state whether the equation is an identity, a conditional equation, or an inconsistent equation.

$\frac{3x}{5} - x = \frac{x}{10} - \frac{5}{2}$

Solution set: _____

Identity or Conditional Equation or Inconsistent Equation
(circle one)

7. (3 points) Solve the following equation (that is, write the solution set). Also, state whether the equation is an identity, a conditional equation, or an inconsistent equation.

$5x + 9 = 9(x + 1) - 4x$

Solution set: _____

Identity or Conditional Equation or Inconsistent Equation
(circle one)

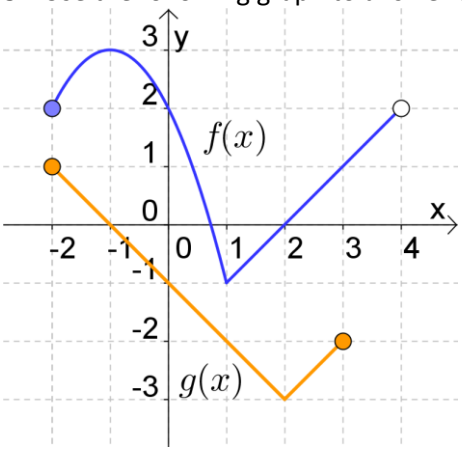
8. (3 points) Solve the following equation (that is, write the solution set). Also, state whether the equation is an identity, a conditional equation, or an inconsistent equation.

$4(y + 5) = 21 + 4y$

Solution set: _____

Identity or Conditional Equation or Inconsistent Equation
(circle one)

9. Use the following graph to answer the following questions.



a. (1 point) What is the domain of f? Write your answer using interval notation. Domain: _____

b. (1 point) What is the range of f? Write your answer using interval notation. Range: _____

c. (1 point) What is the domain of $f + g$? Write your answer using interval notation. Domain: _____

d. (1 point) Find $f(1)$.

$f(1) =$ _____

e. (1 point) Find $\left(\frac{f}{g}\right)(3)$.

$\left(\frac{f}{g}\right)(3) =$ _____

f. (1 point) For what value(s) of x is $g(x) = -2$?

$x =$ _____

10. (1 point) Suppose $f(x) = x + 4$ and $g(x) = 2x - 6$. Find the domain of $\frac{f}{g}$. Write your answer using interval notation.

Domain: _____

11. Let f be defined by the following table:

x	$f(x)$
-4	5
-2	2
0	0
2	2
4	5

a. (1 point) Find the range of f. Range: _____

b. (1 point) Find $\sqrt{f(4) + [f(-2)]^2}$

Answer: _____

c. (1 point) For what value(s) of x is $f(x) = 5$?

$x =$ _____

12. Let $f(x) = 2x - 1$ and $g(x) = x^2 - x + 3$.

a. (2 points) Find $(f - g)(x)$. Be sure to simplify your answer.

$(f - g)(x) =$ _____

b. (2 points) Find $(fg)(-2)$

$(fg)(-2) =$ _____

13. (3 points) You are choosing between two pay-as-you-go cell phone plans. The one from Me-Tobile is $15 plus $0.08 per minute, and the one from Revison is $3 plus $0.12 per minute. After how many minutes of usage do the cell phone plans cost the same?

Answer: _____

14. (2 points) Use the order of operations to simplify the following expression.
$4^2 - 8 \div |-6 + 4| \cdot (-2) + \sqrt{36 + 64}$

Answer: _____

15. Evaluate each of the following:

a. (0.5 points) $\frac{57}{0}$ Answer: _____

b. (0.5 points) $\frac{0}{34}$ Answer: _____

16. (2 points) Simplify: $\left(\frac{-15a^4b^2}{5a^{10}b^{-3}}\right)^3$

Answer: _____

17. (0 points) How many hours of sleep did you get last night? _____