

## Algebra I Homework #15

- 1) Write  $761.9 \times 10^{-7}$  in scientific notation.
- 2) Simplify: 
$$\frac{144x^3ya^2 - 96x^7y^5a^3 - 243x^4y^3a}{216x^5y^2a^4}$$
- 3) Find the equation of the line that goes through the points  $(-4, -9)$  and  $(4, 9)$
- 4) Simplify: 
$$\frac{9 + 2x - 5x^3}{x + 3}$$
- 5) Simplify:  $(6x^3 - 4x^2 + 7x)(3x^2 + 5x - 1)$
- 6) Find  $g \circ f(x)$  if  $f(x) = 4x - 3$  and  $g(x) = -2x^2 + 5x - 8$  and then evaluate  $g \circ f(-7)$
- 7) Solve  $-2 \leq -4x + 3 < 2$  and graph the final answer on a number line.
- 8) Find the domain and range of the following relation and determine if the relation is a function:  $\{(-2, 3), (4, -6), (3, -2), (-4, -1), (5, -6), (0, 0), (-5, 2)\}$
- 9) Find  $f \circ g(x)$  if  $f(x) = -x^2 - x + 4$  and  $g(x) = x^2 - 2x + 7$  and then evaluate  $f \circ g(3)$
- 10) Solve  $-1 > -2x - 3 \geq -7$  and graph the final answer on a number line.
- 11) Find  $(f - g)(x)$  if  $f(x) = 4x^3 - 3x^2 + 5x - 8$  and  $g(x) = 6x^3 - 4x^2 - 9x + 5$  and then evaluate  $(f - g)(-5a)$
- 12) Solve  $-3 \geq 6x + 4 > -9$  and graph the final answer on a number line.

**Copyright © 2013 by Dr. Joseph Phillips**

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without prior written permission from the author.

- 13) Find the domain and range of the following relation and determine if the relation is a function:  $\{(8, -9), (7, 3), (-5, -2), (6, -9), (-3, -7), (9, 0), (-5, 8), (0, 5), (-6, 6)\}$
- 14) Find  $\frac{g}{f}(x)$  if  $f(x) = 6x^2 + 11x - 35$  and  $g(x) = 12x^2 - 47x + 45$  and then evaluate  $\frac{g}{f}(2a - 3)$
- 15) Solve  $-13 < -5x + 2 < 12$  and graph the final answer on a number line.
- 16) If  $f(x) = 4x^2 - 2x + 1$  and  $g(x) = -3x + 5$  find:  $(f + g)(x)$ ,  $(f - g)(x)$ ,  $(f \cdot g)(x)$ ,  $f \circ g(x)$ ,  $g \circ f(x)$  and then evaluate  $f \circ g(-2) + (f - g)(4)$
- 17) Solve  $-4 < -3x + 2 < 6$  and graph the final answer on a number line.
- 18) Find the domain and range of the following relation and determine if the relation is a function:  $\{(0, 5), (-11, 7), (-4, 4), (0, 0), (12, -13), (6, 9), (-1, 6), (-5, -5), (8, -5)\}$
- 19) Solve  $5 \geq 4x - 7 \geq -6$  and graph the final answer on a number line.
- 20) Find the domain and range of the following relation and determine if the relation is a function:  $\{(7, -9), (-7, 8), (-6, -1), (0, 12), (6, -9), (5, 8), (-3, -10), (-1, -9), (-5, 2), (-4, 8)\}$