

8.3H Multiplying Binomials

SHOW YOUR WORK AND WORK IN PENCIL

Name: _____ Per: _____

1. Multiply the following binomials.

a. $(x + 1)(x + 2)$

c. $(x + 3)(x + 2)$

b. $(x + 2)(x + 3)$

d. $(x + 4)(x + 3)$

2. If $f(x) = 3x + 6$ and $g(x) = 2x - 4$, give the following information.

a. Factor out the slope for $f(x)$. _____ What is the x-intercept of $f(x)$? _____

b. Factor out the slope for $g(x)$. _____ What is the x-intercept of $g(x)$? _____

c. Write the equation for $f(x) + g(x)$? _____ Write the equation for $f(x) - g(x)$? _____

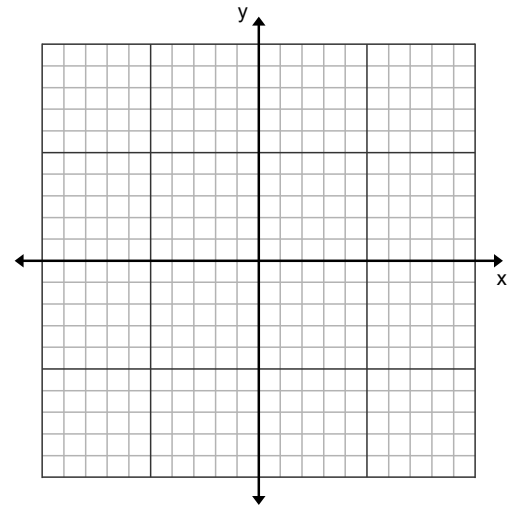
d. Find the x-intercept of $f(x) + g(x)$ by factoring out the slope. _____

e. Find the x-intercept of $f(x) - g(x)$ by factoring out the slope. _____

f. If we wanted to shift $f(x)$ down 9 units. What would the new equation be? _____

g. Complete the table for the following functions.

x	$f(x)$	$g(x)$	$f(x) + g(x)$	$f(x) - g(x)$	$f(x) g(x)$
-2					
-1					
0					
1					
2					



h. What are the x-intercept(s) of $f(x)g(x)$? _____

i. Graph the five functions from your table and label.

3. Using the equations from the previous question, **write the equations for the following and simplify.**

a. $2f(x) + g(x) =$ _____ $=$ _____

b. $3f(x) - 2g(x) =$ _____ $=$ _____

c. Set up $f(x)g(x) =$ _____ Multiply the two expressions: _____

d. Set up $g(x)f(x) =$ _____ Multiply the two expressions: _____

Extra Credit: $f(g(x)) =$ _____ $=$ _____

Extra Credit: $g(f(x)) =$ _____ $=$ _____

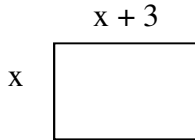
4. Multiply the following using **any method**.

a. $(x + 3)(x - 4)$

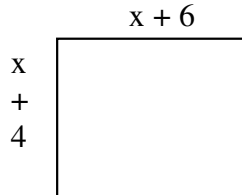
b. $f(x) = x + 1$ and $g(x) = 2x + 5$ find $f(x)g(x)$

5. **Divide the boxes** to show how to find the area of each shape. **Label your units.**

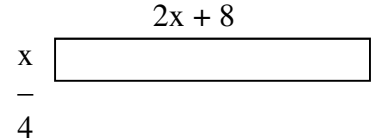
a.



b.



c.

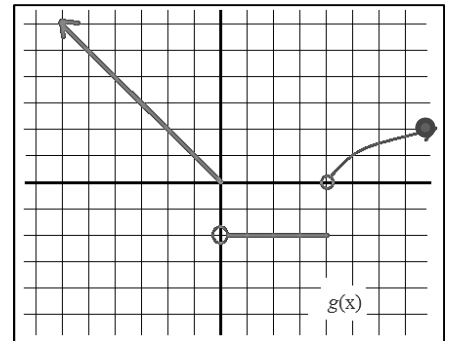


6. Graphing different values for x , what would the graph show as (using #5 above)

- a. the y-intercept for graph a? _____
- b. the x-intercept(s) for graph a? _____
- c. the y-intercept for graph b? _____
- d. the x-intercept(s) for graph b? _____
- e. the y-intercept for graph c? _____
- f. the x-intercept(s) for graph c? _____

7. List the key features of the graph $g(x)$. on the grid to the right.

- a. Is $g(x)$ a function? _____ Explain: _____
- b. What is the Domain? _____
- c. What is the Range? _____
- d. List an interval where the graph is increasing? _____
- e. What is the minimum on the interval $[4, 8]$? _____
- f. What is $g(4)$? _____
- h. What is $g(-1)$? _____
- g. What is $g(x) = -2$? _____
- i. What is $g(x) = 5$? _____



8. Using the parent graph of $f(x) = x$, write the new equation. Describe how the graph would change.

- a. $2f(x)$ _____
- b. $f(x) + 2$ _____
- c. $f(x) - 2$ _____
- d. $3f(x) + 2$ _____
- e. $f(x + 2)$ _____
- f. $f(x - 5) + 2$ _____

9. **Solve and graph:** $(6x + 5) \div 3 + 6x \leq -\frac{44}{12} + 3x + y$

