

LESSON 1.5 Skills Practice

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Name _____ Date _____

**I've Created a Monster, $m(x)$
Analyzing Graphs to Build New Functions**

Vocabulary

Write the term that best completes each statement.

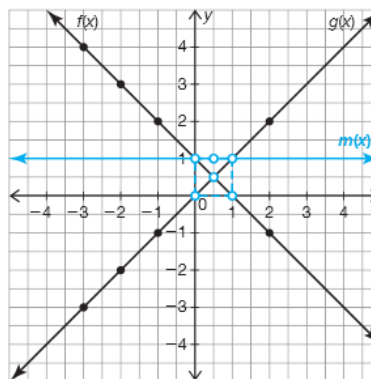
1. A _____ is a mathematical expression involving the sum of powers in one or more variables multiplied by coefficients.
2. The _____ of a polynomial is the greatest variable exponent in the expression.
3. The _____ states that if the product of two or more factors is equal to zero, then at least one factor must be equal to zero.

Problem Set

Predict the function family of $m(x)$ and sketch the graph of $m(x)$ using key points.

1. $m(x) = f(x) + g(x)$
 $f(x) = -x + 1; g(x) = x$

The function $m(x)$ will belong to the linear function family.

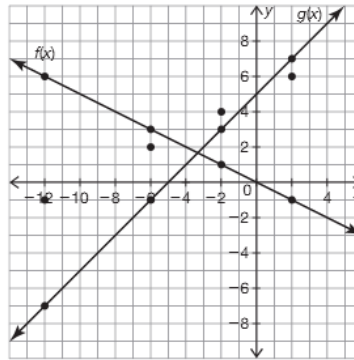


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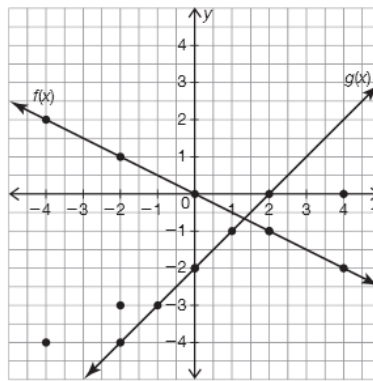
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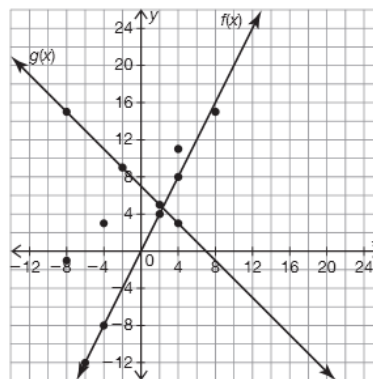
2. $m(x) = f(x) + g(x)$
 $f(x) = -\frac{1}{2}x; g(x) = x + 5$



3. $m(x) = f(x) + g(x)$
 $f(x) = -\frac{1}{2}x; g(x) = x - 2$



4. $m(x) = f(x) + g(x)$
 $f(x) = 2x; g(x) = -x + 7$



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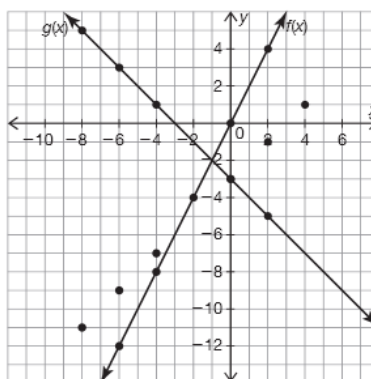
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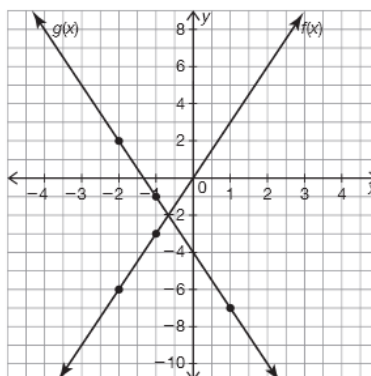
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5. $m(x) = f(x) + g(x)$
 $f(x) = 2x; g(x) = -x - 3$



6. $m(x) = f(x) + g(x)$
 $f(x) = 3x; g(x) = -3x - 4$



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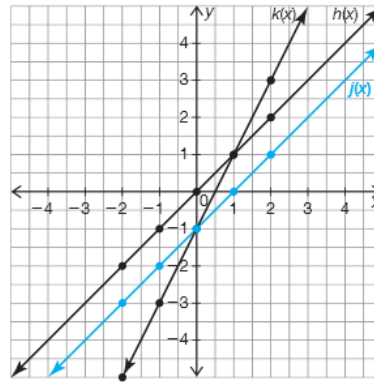
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Draw the function $j(x)$ with outputs such that $k(x) = h(x) + j(x)$. Then complete the table of values to verify that $h(x) + j(x) = k(x)$.

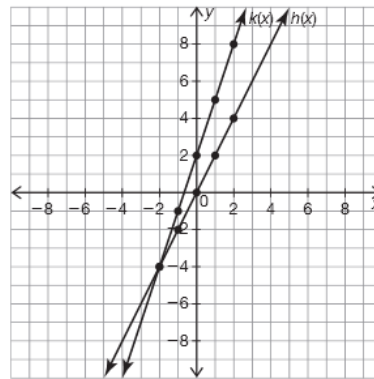
7.

x	$h(x)$	$j(x)$	$k(x) = h(x) + j(x)$
-2	-2	-3	-5
-1	-1	-2	-3
0	0	-1	-1
1	1	0	1
2	2	1	3



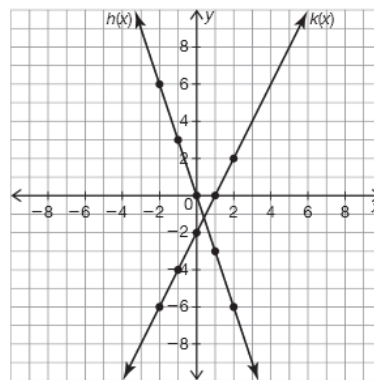
8.

x	$h(x)$	$j(x)$	$k(x) = h(x) + j(x)$
-2			
-1			
0			
1			
2			



9.

x	$h(x)$	$j(x)$	$k(x) = h(x) + j(x)$
-2			
-1			
0			
1			
2			



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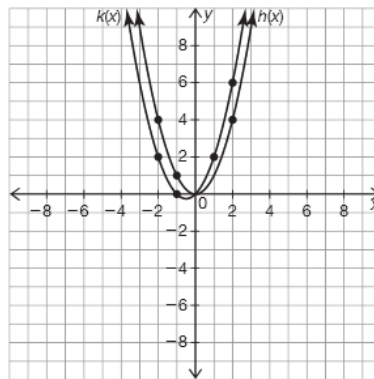
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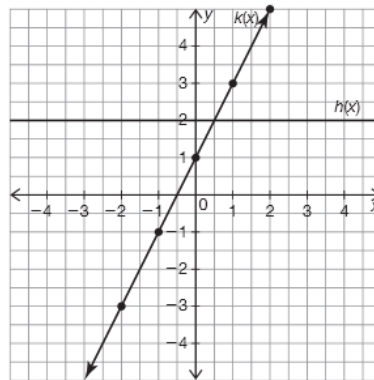
10.

x	$h(x)$	$j(x)$	$k(x) = h(x) + j(x)$
-2			
-1			
0			
1			
2			



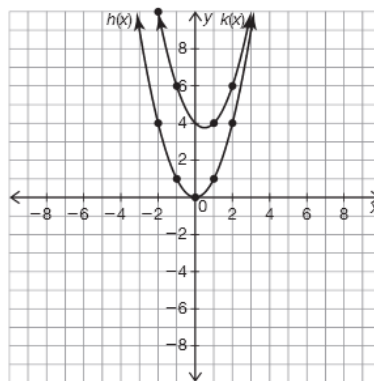
11.

x	$h(x)$	$j(x)$	$k(x) = h(x) + j(x)$
-2			
-1			
0			
1			
2			



12.

x	$h(x)$	$j(x)$	$k(x) = h(x) + j(x)$
-2			
-1			
0			
1			
2			



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Algebraically show that $h(x) + j(x)$ is equivalent to $k(x)$.

13. $h(x) = 2x - 3$; $j(x) = -4x + 6$; $k(x) = -2x + 3$

$$h(x) + j(x) = k(x)$$

$$2x - 3 + (-4x + 6) = -2x + 3$$

$$-2x + 3 = -2x + 3$$

14. $h(x) = 15 - x$; $j(x) = \frac{1}{2}x + 1$; $k(x) = 16 - \frac{1}{2}x$

15. $h(x) = -3x + 5$; $j(x) = -5x - 7$; $k(x) = -8x - 2$

16. $h(x) = -x - 12$; $j(x) = -6x - 21$; $k(x) = -7x - 33$

17. $h(x) = \frac{1}{2}x + 9$; $j(x) = \frac{1}{2}x + 6$; $k(x) = x + 15$

18. $h(x) = -12x - 1$; $j(x) = -7x + 11$; $k(x) = -19x + 10$