NAME _____ DATE _____ PERIOD _____

Study Guide and Intervention
Dividing Functions

Exercises

Use the given table to find quotients and/or rules.

1. Complete the table for missing h(x) values.

x	$f(x) = x^2 - 5x - 14$	$g(x) = x - 7$	$h(x) = f(x) \div g(x)$
0	-14	-7	
1	-18	-6	
2	-20	-5	
3	-20	-4	
4	-18	-3	
5	-14	-2	
6	-8	-1	

2. The table shows values from the functions $f(x) = 2x^2 - 3x - 5$, $g(x) = x + 1$, and the quotient $h(x) = f(x) \div g(x)$. Use finite differences to write the function rule for h(x).

x	$f(x) = 2x^2 - 3x - 5$	$g(x) = x + 1$	$h(x) = f(x) \div g(x)$
0	-5	1	-5
1	-6	2	-3
2	-3	3	-1
3	4	4	1
4	15	5	3
5	30	6	5
6	49	7	7

3. Use the table for the function $f(x) = 2x^3 - 5x^2 - 3x$ and $g(x) = x$ to find the values for the quotient $h(x) = f(x) \div g(x)$. Then use finite differences to write the function rule for h(x).

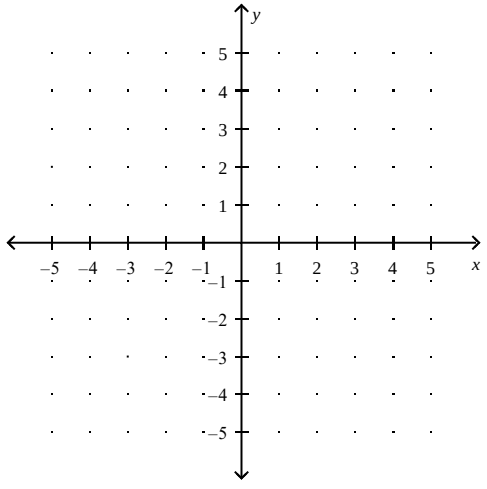
x	-6	-5	-4	-3	-2	-1
$f(x) = 2x^3 - 5x^2 - 3x$	-594	-360	-196	-90	-30	-4
$g(x) = x$	-6	-5	-4	-3	-2	-1
$h(x) = f(x) \div g(x)$						

4. Use the table for the function $f(x) = x^2 - 25$ and $g(x) = x - 5$ to find the values for the quotient $h(x) = f(x) \div g(x)$. Then use finite differences to write the function rule for h(x).

x	$f(x) = x^2 - 25$	$g(x) = x - 5$	$h(x) = f(x) \div g(x)$
-2	-21	-7	
-1	-24	-6	
0	-25	-5	
1	-24	-4	
2	-21	-3	
3	-16	-2	
4	-9	-1	

For questions 5 – 7, find the quotients and rules symbolically and verify your solution graphically.

5. Find the quotient w(x) of the quadratic function $u(x) = 6x^2 + 7x - 3$ divided by the linear function $v(x) = 2x + 3$ symbolically and verify the equation graphically.



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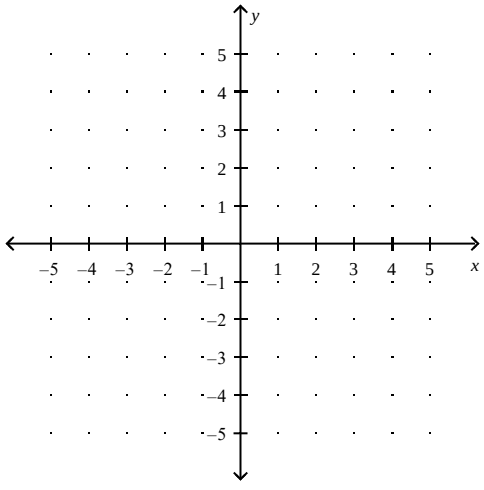
Study Guide and Intervention

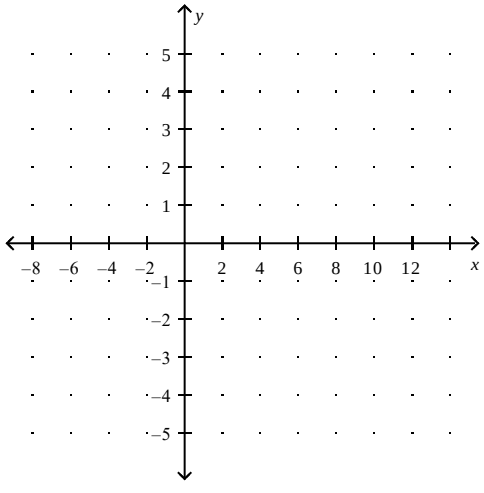
Dividing Functions (cont.)

Exercises

6. Find the quotient w(x) of the linear function $u(x) = 3x + 5$ divided by the quadratic function $v(x) = 3x^2 + 2x – 5$ symbolically and verify the equation graphically.



7. Find the quotient w(x) of the linear function $u(x) = 6x – 9$ divided by the quadratic function $v(x) = 2x^2 – 11x + 12$ symbolically and verify the equation graphically.



For questions 8 – 12, determine the quotient $h(x) = f(x) \div g(x)$ for the given functions f(x) and g(x).

8. Find $h(x) = f(x) \div g(x)$ for $f(x) = 3x^2 + 17x + 10$ and $g(x) = x + 5$.

9. Find $h(x) = f(x) \div g(x)$ for $f(x) = 2x – 5$ and $g(x) = 2x^2 + 7x – 30$.

10. Find $h(x) = f(x) \div g(x)$ for $f(x) = 4x^3 – 17x^2 + 15x$ and $g(x) = 4x^2 – 5x$.

11. Find $h(x) = f(x) \div g(x)$ for $f(x) = 6x$ and $g(x) = 8x^2 – 2x$.

12. Find $h(x) = f(x) \div g(x)$ for $f(x) = 6x^3 – 21x^2 – 45x$ and $g(x) = 2x + 3$.