LESSON 5.5 Skills Practice

Name _____ Date _____

The Choice Is Yours

Comparing Polynomials in Different Representations

Problem Set

Analyze each pair of representations. Then, answer each question and justify your reasoning.

1. Which polynomial function has a greater degree?

A polynomial function $b(x)$ with 2 absolute minimums and 1 relative maximum.	$c(x) = -2(3 - x^2)(x - 4) + 9$

The function $b(x)$ has a greater degree.

A function with 2 absolute minimums and 1 relative maximum must have a degree greater than 3. The first function is at least a quartic function. The second function is a cubic function.

2. Which polynomial function has a greater number of real zeros?

$d(x) = x^2 - x - 6$	

x	$f(x)$
−5	−8
−4	−1
−3	0
−2	1
−1	8
0	27
1	64

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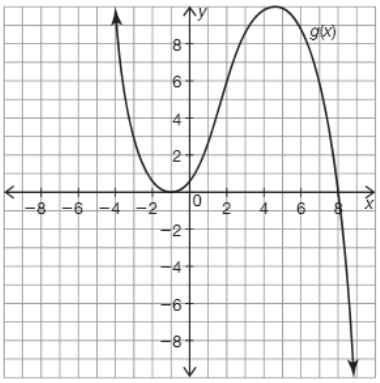
3. Which function has an odd degree?



A polynomial function $h(x)$ with 2 real zeros and an imaginary zero.

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4. Which function has the greater output as x approaches infinity?

$j(x) = -x^4 + 3x^2 + 120$	A quintic function $k(x)$ with $a > 0$.

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5. Which function has the smaller output as x approaches negative infinity?

A quadratic equation $m(x)$ with y-intercept of $(0, -12)$ and imaginary roots.	$n(x) = -2(x + 3)^5 - 25$

6. Which function has a greater y-intercept?

x | $p(x)$ -6 | 16 -4 | 0 -2 | -8 0 | -8 2 | 0 4 | 16	$q(x) = (x + 2)^3 - 9$

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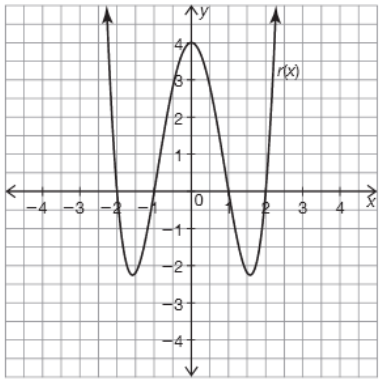
7. Which function has a greater average rate of change over the interval (−2, 2)?



A quadratic equation $s(x)$ with a vertex of (−2, −4) and a y-intercept of (0, 0).

8. Which function has a greater relative maximum?

A quartic function $t(x)$ with $a > 0$ and 4 distinct real roots.

A cubic function $u(x)$ with y-intercept (0, −12) and 1 real root at −3 and 2 imaginary roots.

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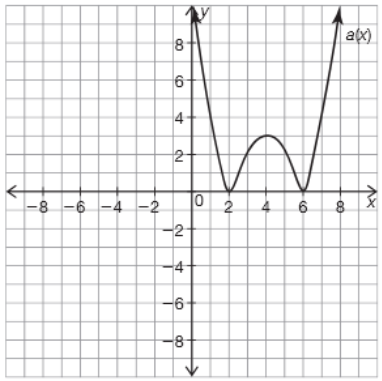
9. Which function's axis of symmetry has a greater x-value?

A quadratic function $z(x)$ with zeros at -4 and 4.	

10. Which function has a greater output for a given input?

The basic cubic function $f(x) = x^3$.	$d(x) = f(x - 1) - 5$

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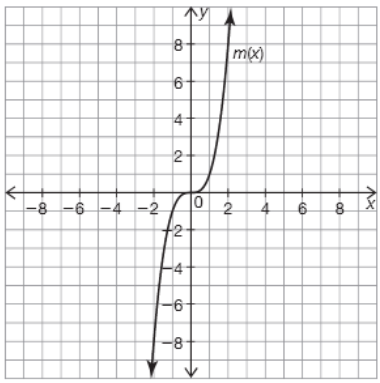
11. Which function has a lower minimum?

x	$g(x)$
−2	4
−1	1
0	0
1	1
2	4

$h(x) = 4g(x - 3) - 8$

12. Which function has a greater input for a given output?



$n(x) = m(x + 4) + 1$

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