

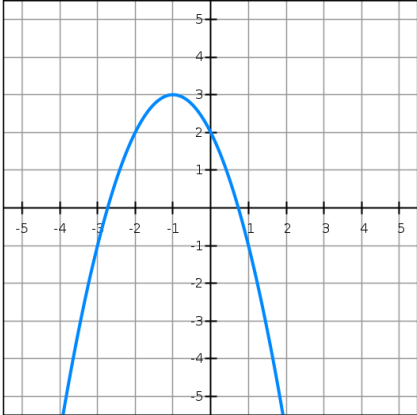
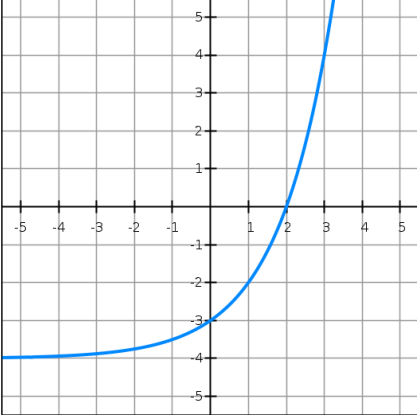
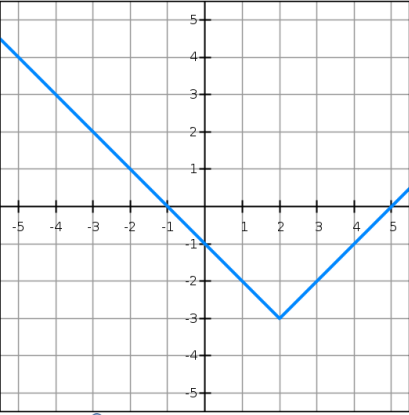
Unit 2 Review

What you must know how to do for the exam:

<ul style="list-style-type: none"> • Find the domain, range, intercepts, maximum, minimum, end behavior, asymptote, axis of symmetry of any function. • Calculate the average rate of change on any interval. • Identify the parent function given the graph. • Find the square root of a negative number. (Unit 1) 	<ul style="list-style-type: none"> • Evaluate a function a given value of x or y. • Add, subtract, multiply and divide functions. • Perform a composition of functions. • Find the inverse of a function. • Multiply complex numbers. (Unit 1) • Solve an equation. (Unit 1) • Simplify a radical or exponential expression. (Unit 1)
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Directions: Work the problems out in the space provided. Be sure to understand how to do **every problem** in this packet and make notes on your review sheet for things to remember.

For Questions 1-3, find the characteristics requested of the graphs below:

<p>1.</p> 	<p>2.</p> 	<p>3.</p> 
<p>a) Domain: _____</p> <p>b) Axis of symm: _____</p> <p>c) Maximum value: _____</p> <p>d) End Behavior: _____ _____</p> <p>e) Average Rate of Change on the interval $[-3, 0]$</p>	<p>a) Range: _____</p> <p>b) Asymptote: _____</p> <p>c) x-intercept: _____</p> <p>d) y-intercept: _____</p> <p>e) Average Rate of Change on the interval $[1, 3]$</p>	<p>a) Range: _____</p> <p>b) Axis of symm: _____</p> <p>c) x-intercept: _____</p> <p>d) Minimum value: _____</p> <p>e) End Behavior: _____ _____</p>

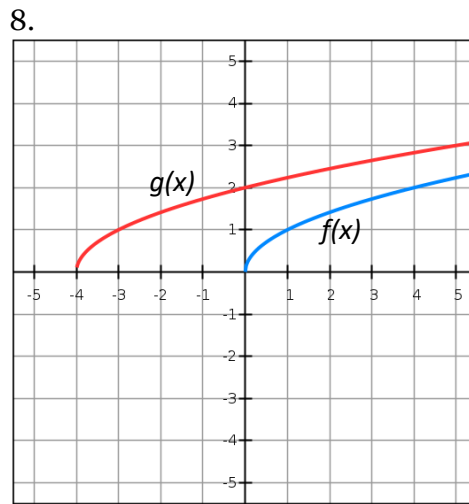
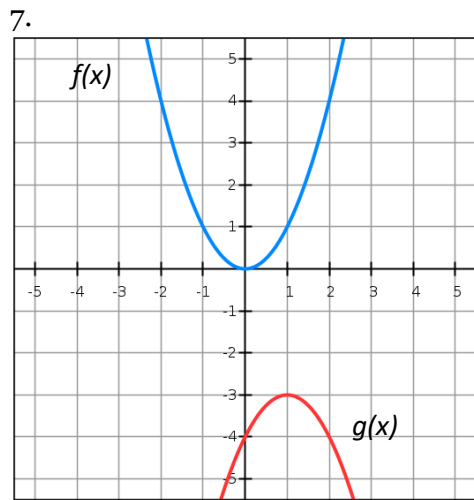
4. Fill in the table with the transformations for each parameter, a, h, or k:

a	h	k
a is negative: _____ _____	$x + h$: _____ $x - h$: _____	$+ k$: _____ $- k$: _____
$ a > 1$: _____		
$ a < 1$: _____		

For Questions 5-8, describe the transformations that map the parent function, $f(x)$, to the transformed function, $g(x)$.

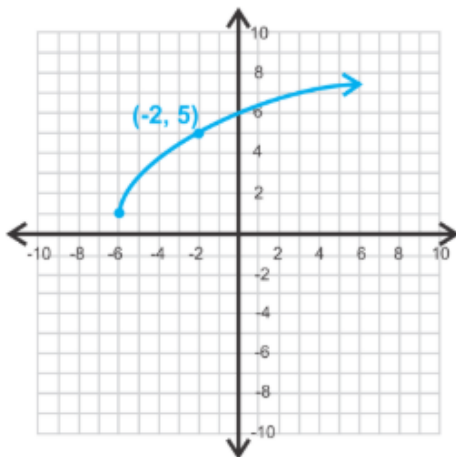
5.
 $f(x) = \sqrt{x}$
 $g(x) = -3\sqrt{x - 5}$

6.
 $f(x) = x^3$
 $g(x) = \frac{1}{2}x^3 - 2$

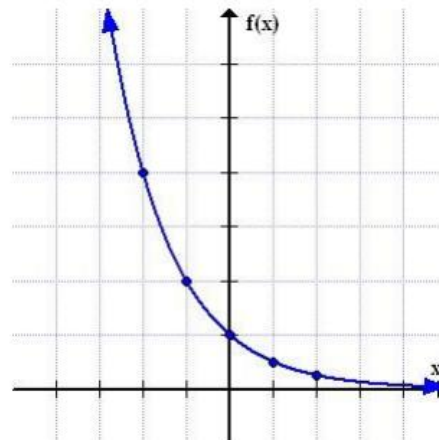


For Questions 9-10, give the name of the parent function graphed below.

9. _____



10. _____



For Questions 11-18, find the operations indicated. Simplify all expressions. Use the following functions:

$$f(x) = -x + 2$$

$$g(x) = 5x^2$$

$$h(x) = \frac{8}{x}$$

$$p(x) = x^2 + 4x$$

11. $(g + p)(x)$	12. $p(x) - f(x)$	13. $(g \cdot h)(x)$	14. $\left(\frac{f}{g}\right)(x)$
15. $(f - h)(2)$	16. $g(-1) \cdot f(-1)$	17. $\frac{p(1)}{f(1)}$	18. $g(3) + p(3)$

For Questions 19-22, find the compositions indicated. Use the following functions:

$$f(x) = -2x^2$$

$$g(x) = x + 5$$

$$h(x) = \sqrt{x}$$

19. $g(f(x))$	20. $g(h(9))$
21. $(f \circ g)(x)$	22. $(h \circ g)(20)$

For Questions 23-26, find the inverse of the function given below.

23. $f(x) = 6x - 1$	24. $f(x) = \frac{x+5}{3}$
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$$25. f(x) = \frac{1}{x+6} - 3$$

$$26. f(x) = 7 + x^2$$

Questions 27-31 are Unit 1 Review questions.

$$27. \text{ Multiply } (5 - 2i)(-3 + i)$$

$$28. \text{ Solve for } x: 9 - 3x = 2(4 + 5x)$$

$$29. \text{ Simplify. } (2x^2y)^3$$

$$30. \text{ Simplify. } \sqrt{-32}$$

$$31. \text{ Simplify. } \sqrt{24xy^4}$$

For Questions 32-33, use the function, $f(x) = 5x + 9$

$$32. \text{ Find } f(-4)$$

$$33. \text{ Find the value of } x \text{ when } f(x) = 36.$$