Student: _____	**Instructor:** Garth Isaak	**Assignment:** Functions and graphs practice diagnostic 3b
Date: _____	**Course:** precalc blitzer (1)	
Time: _____	**Book:** Blitzer: Precalculus Essentials, 3e	

1. Evaluate the function at the given value of the independent variable and simplify.

$f(x) = \frac{x^3 + 2}{x^2 + 6}$; $f(-2)$

A. $\frac{3}{5}$

B. $-\frac{3}{2}$

C. $-\frac{4}{5}$

D. $-\frac{3}{5}$

2. Find and simplify the difference quotient $\frac{f(x+h) - f(x)}{h}$, $h \neq 0$ for the given function.

$f(x) = \frac{1}{6x}$

A. $-\frac{1}{6x(x+h)}$

B. 0

C. $-\frac{1}{x(x+h)}$

D. $\frac{1}{6x}$

3. Use the given conditions to write an equation for the line in slope-intercept form.

Slope $= 4$, passing through $(7,2)$

A. $y - 2 = 4x - 7$

B. $y = 4x - 26$

C. $y = 4x + 26$

D. $y - 2 = x - 7$

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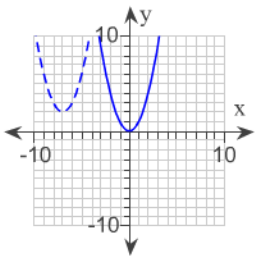
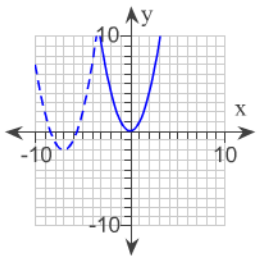
4. Begin by graphing the standard quadratic function $f(x) = x^2$. Then use transformations of this graph to graph the given function.

$h(x) = (x - 7)^2 - 2$

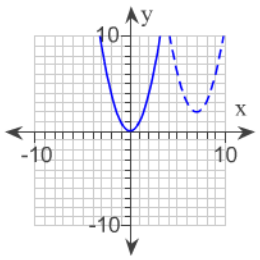
○ A.



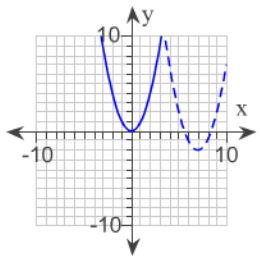
○ B.



○ C.



○ D.



5. Find functions f and g so that $h(x) = (f \circ g)(x)$.

$$h(x) = \frac{1}{x^2 - 3}$$

○ A. $f(x) = 1/x^2,\ g(x) = -1/3$

○ B. $f(x) = 1/x,\ g(x) = x^2 - 3$

○ C. $f(x) = 1/3,\ g(x) = x^2 - 3$

○ D. $f(x) = 1/x^2,\ g(x) = x - 3$

6. Find the inverse of the one-to-one function.

$$f(x) = \frac{4x - 4}{3}$$

○ A. $f^{-1}(x) = \dfrac{3}{4x - 4}$

○ B. $f^{-1}(x) = \dfrac{3}{4x + 4}$

○ C. $f^{-1}(x) = \dfrac{3x - 4}{4}$

○ D. $f^{-1}(x) = \dfrac{3x + 4}{4}$

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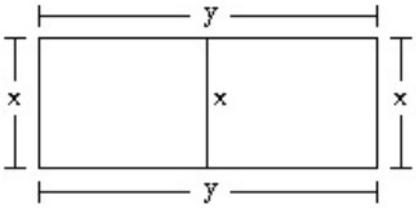
7. The area of a rectangular garden is 225 square feet. The garden is to be enclosed by a stone wall costing \$30 per linear foot. The interior wall is to be constructed with brick costing \$9 per linear foot. Express the cost C, to enclose the garden and add the interior wall as a function of x.



A. $C(x) = 9x + 30\left(x + \frac{225}{x}\right)$

B. $C(x) = 30x + 9\left(2x + \frac{450}{x}\right)$

C. $C(x) = 9x + 30\left(2x + \frac{450}{x}\right)$

D. $C(x) = 9x + 30\left(2x + \frac{225}{x}\right)$

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1. D

2. A

3. B

4. D

5. B

6. D

7. C