Student: _____	**Instructor:** Garth Isaak	**Assignment:** Polynomial etc functions
Date: _____	**Course:** precalc blitzer (1)	practice diagnostic 4b
Time: _____	**Book:** Blitzer: Precalculus Essentials, 3e	

1. Use the Intermediate Value Theorem to determine whether the polynomial function has a real zero between the given integers.

   $f(x) = 7x^5 - 10x^3 - 2x^2 + 7$; between -2 and -1

   ○A. $f(-2) = 145$ and $f(-1) = 8$; no

   ○B. $f(-2) = 145$ and $f(-1) = -8$; yes

   ○C. $f(-2) = -145$ and $f(-1) = -8$; no

   ○D. $f(-2) = -145$ and $f(-1) = 8$; yes

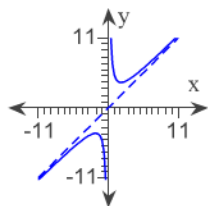2. Use the graph of the rational function shown to complete the statement.
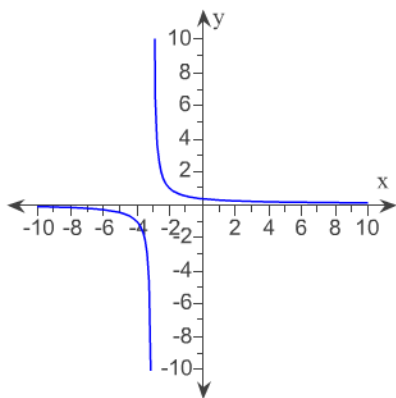
   As $x \to +\infty$, $f(x) \to$?
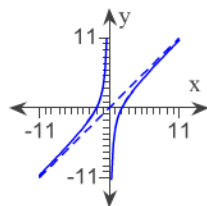
   ○A. 1

   ○B. $+\infty$

   ○C. $-\infty$

   ○D. 0
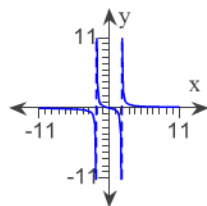
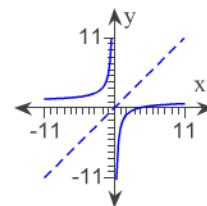3. Graph the function.

   $f(x) = \dfrac{x^2 - 4}{x}$

   ○A.

   ○B.

   ○C.

   ○D.

Student: _____	Instructor: Garth Isaak	Assignment: Polynomial etc functions
Date: _____	Course: precalc blitzer (1)	practice diagnostic 4b
Time: _____	Book: Blitzer: Precalculus Essentials, 3e	

4.   The revenue achieved by selling x graphing calculators is figured to be $x(39 - 0.2x)$ dollars. The cost of each calculator is $15. How many graphing calculators must be sold to make a profit (revenue $-$ cost) of at least $715?

   ○A. Between 56 and 54 calculators

   ○B. Between 55 and 65 calculators

   ○C. Between 57 and 63 calculators

   ○D. Between 25 and 35 calculators

5.   The graph of a logarithmic function is given. Select the function for the graph from the options.
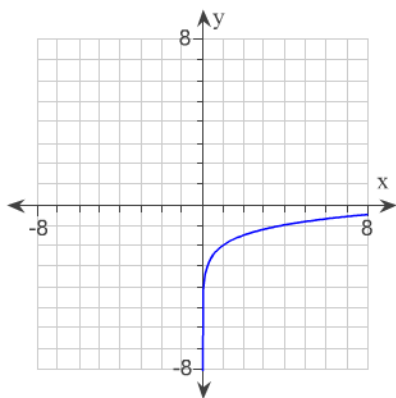
   ○A. $f(x) = \log_4 x - 2$

   ○B. $f(x) = \log_4 (x - 2)$

   ○C. $f(x) = \log_4 (x + 2)$

   ○D. $f(x) = \log_4 x$

6.   Use properties of logarithms to condense the logarithmic expression. Write the expression as a single logarithm whose coefficient is 1. Where possible, evaluate logarithmic expressions.

   $$\frac{1}{6}(\log_2 x + \log_2 y)$$

   ○A. $\log_2 \sqrt[6]{xy}$

   ○B. $\log_2 \sqrt[6]{x} + \log_2 \sqrt[6]{y}$

   ○C. $\log_2 \sqrt[6]{x + y}$

   ○D. $\sqrt[6]{\log_2 (xy)}$

Student: _____	Instructor: Garth Isaak	Assignment: Polynomial etc functions
Date: _____	Course: precalc blitzer (1)	practice diagnostic 4b
Time: _____	Book: Blitzer: Precalculus Essentials, 3e	

7.   Solve the logarithmic equation. Be sure to reject any value that is not in the domain of the original logarithmic expressions. Give the exact answer.

$\log_2(x + 3) = 1 + \log_2(x - 4)$

○ A. $\{(11 / 1)\}$

○ B. $\{(7 / 1)\}$

○ C. $\{(-11 / 1)\}$

○ D. $\{(-7 / 1)\}$

1.　　　　D

2.　　　　D

3.　　　　B

4.　　　　B

5.　　　　A

6.　　　　A

7.　　　　A