Unit 2 – Quiz Review

#1. Find all Holes/Asymptotes for each of the rational functions.

$$a). \quad y = \frac{2x^2 - 9x - 18}{x^2 - 36}$$

$$b.) \quad y = \frac{3x^2 - x}{x^3 - x}$$

$$c) \quad y = \frac{6x^2 - 3x + 6}{x + 1}$$

#2. Find the Limit for the following functions.

$a)\ \lim_{x\to 3}\ (x^3+x^2-9x-3)$

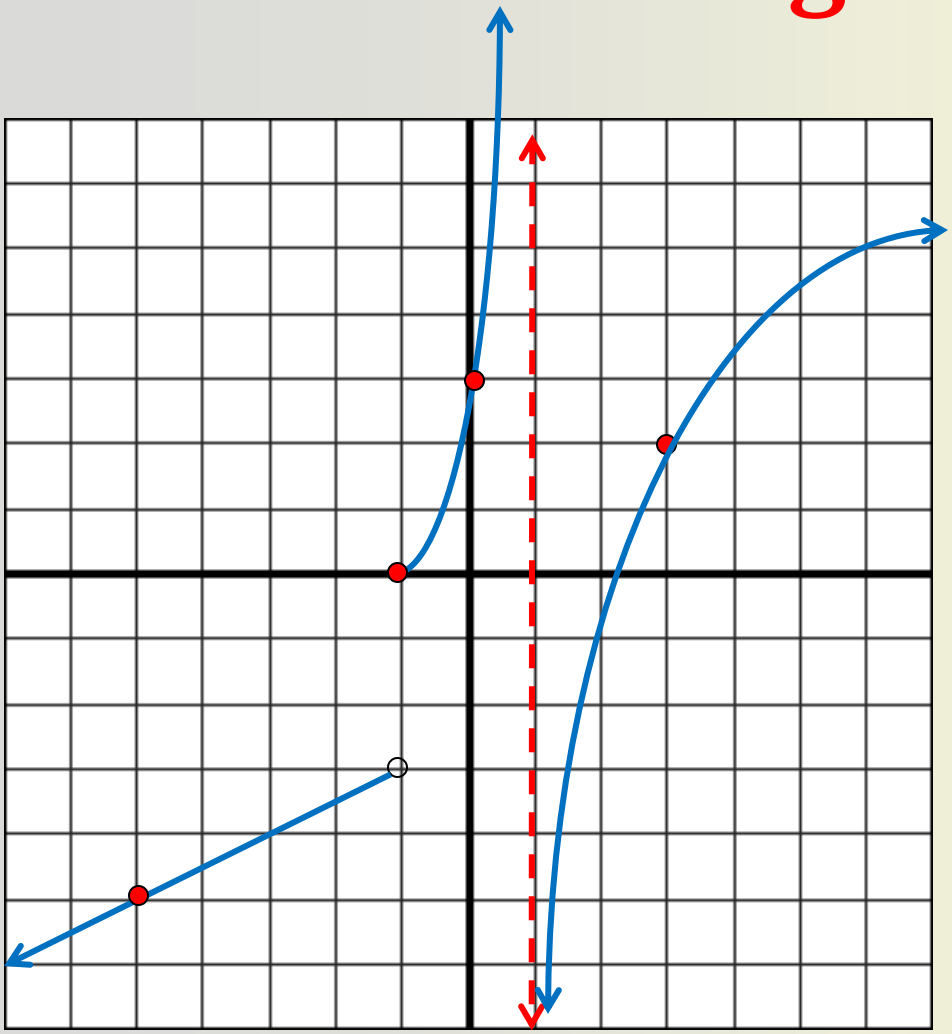
$b)\ \lim_{x\to 2}\ \dfrac{4x^2-8x}{x-2}$

$c)\ \lim_{x\to -3}\ \sqrt{(5x^2+2x)} =$

$d)\ \lim_{x\to \frac{1}{2}}\ \dfrac{10x-5}{2x^2-3x+1}$

$e)\ \lim_{x\to \pi}\ (\cos 2x) =$

#3. Complete the following from the graph provided.



a) $f(3) =$

b) $\lim_{x \to 1^-} f(x) =$

c) $f(-1) =$

d) $\lim_{x \to -1^+} f(x) =$

e) $\lim_{x \to 3} f(x) =$

f) $\lim_{x \to 0^+} f(x) =$

g) $\lim_{x \to -5} =$

h) $\lim_{x \to -1^-} f(x) =$

i) $f(1) =$

j) $\lim_{x \to 1} f(x) =$

#4. Find the Limit for the following functions using your graphing calculator.

$$a)\ \lim_{x\to -2}\frac{|x+2|}{x+2}=$$

$$b)\ \lim_{x\to 0}\frac{\cos x}{x^2}=$$

$$c)\ \lim_{x\to 0}\frac{\sin 3x}{5x}=$$

#5. Solve the following infinite limits.

$$a)\ \lim_{x\to 1+}\frac{x}{x-1}=$$

$$b)\ \lim_{x\to 4^-}\frac{2x+18}{x^2+5x-36}$$

$$c)\ \lim_{x\to 3}\frac{3x+9}{x^2-9}=$$

#6. Solve the following limits at infinity.

$$a)\ \lim_{x\to\infty} \frac{15x^4+20x^3}{5x^3}$$

$$b)\ \lim_{x\to-\infty} \frac{15x^3+10x^2-5x}{27x^3}$$

$$c)\ \lim_{x\to\infty} \frac{x^2+4x+3}{3x^3-27x}$$

SOLUTIONS

1. a) Hole: $(6, \frac{5}{4})$
VA: $x = -6$
HA: $y = 2$
SA: None

b) Hole (0,1)
VA: $x = 1, -1$
HA: $y = 0$
SA: None

c) Hole: None
VA: $x = -1$
HA: None
SA: $y=6x-9$

2. a) 6
b) 8
c) $\sqrt{39}$
d) -10 e) 1

3. a) 2 b)∞ c)0 d)0 e)2
f) 3 g)-5 h) -3 i)ø j)DNE

SOLUTIONS

4. *a*) *DNE*

   b) ∞

   c) $3/5$

5. *a*) ∞

   b) $-\infty$

   c) *DNE*

6. *a*) ∞

   b) $5/9$

   c) 0