Name: _____ Date: _____

Chapter 1 and 2 Test Review

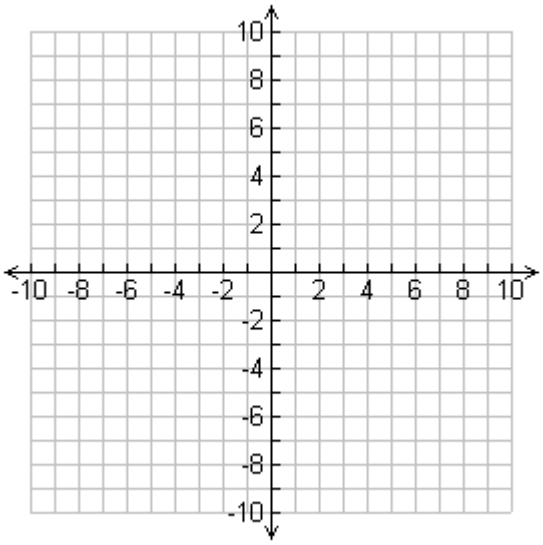
1) Represent the following function in four different ways:
$f(x) = x^2 + 2x - 4$

Verbal:

Numerically:

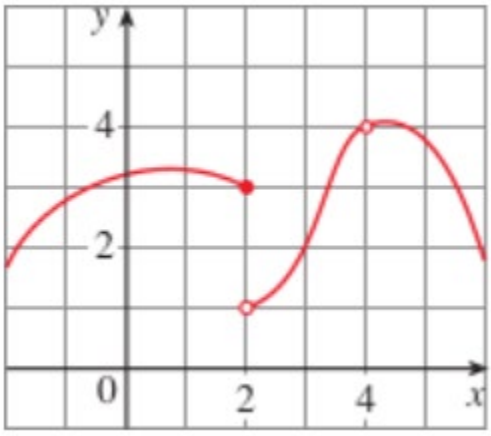
X	Y

Graphically:



Algebraically:

2) Given the following graph of *f* state the value of each quantity if it exists. If it does not exist explain why.



a. $\lim_{x \to 2^-} f(x)$

b. $\lim_{x \to 2^+} f(x)$

c. $\lim_{x \to 2} f(x)$

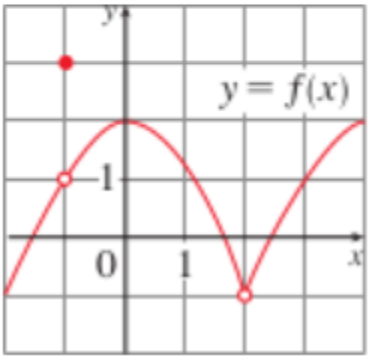
3)

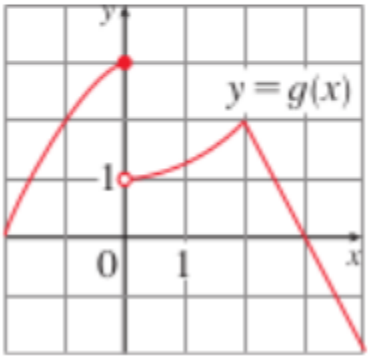
$$\lim_{t \to 0} \frac{e^{5t} - 1}{t} \quad ,$$

$$t = \pm 0.5, \pm 0.1, \pm 0.01, \pm 0.001, \pm 0.0001$$

4)

The graphs of f and g are given. Use them to evaluate each limit, if it exists. If the limit does not exist, explain why.





a. $\lim_{x \to -1} \frac{f(x)}{g(x)}$

b. $\lim_{x \to 3} f(x)g(x)$

c. $\lim_{x \to 0} f(x) + g(x)$

5)

$$\lim_{u \to -2} \sqrt{9 - u^3 + 2u^2}$$

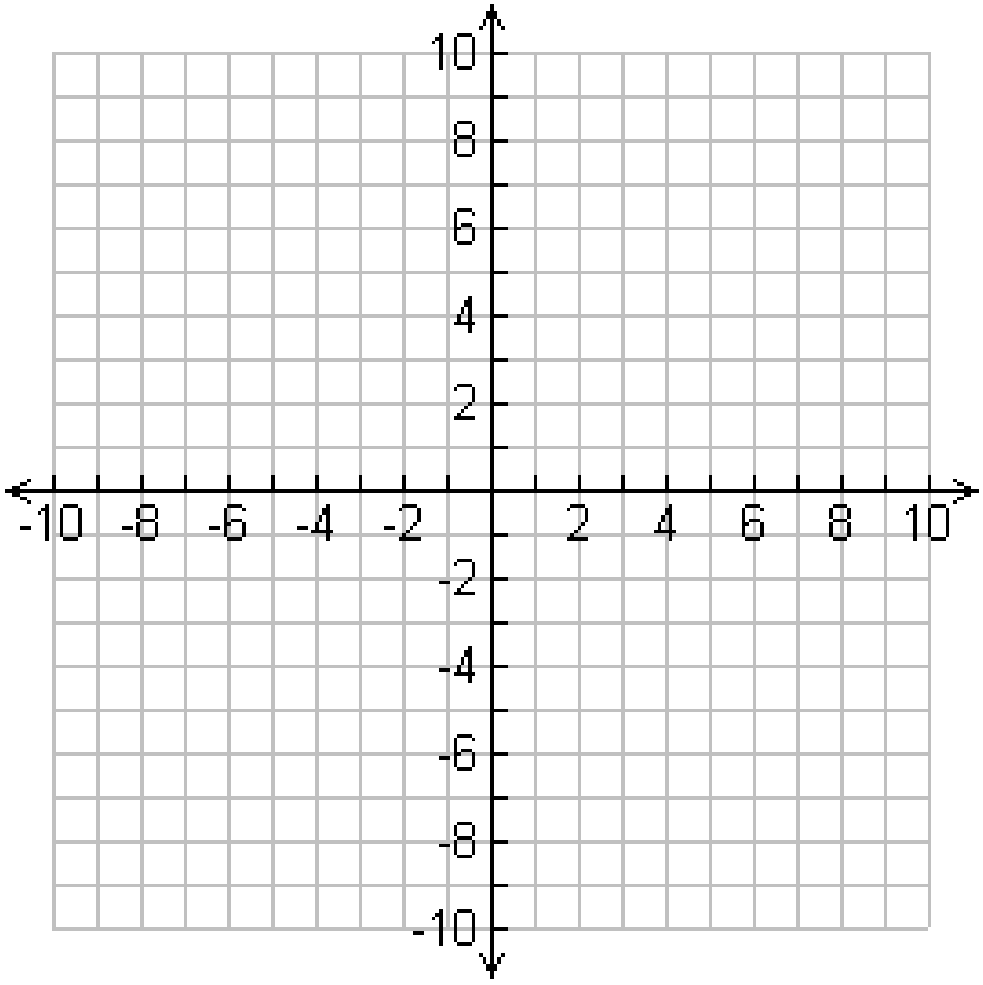
6)

$$\lim_{t \to 4} \frac{t^2 - 2t - 8}{t - 4}$$

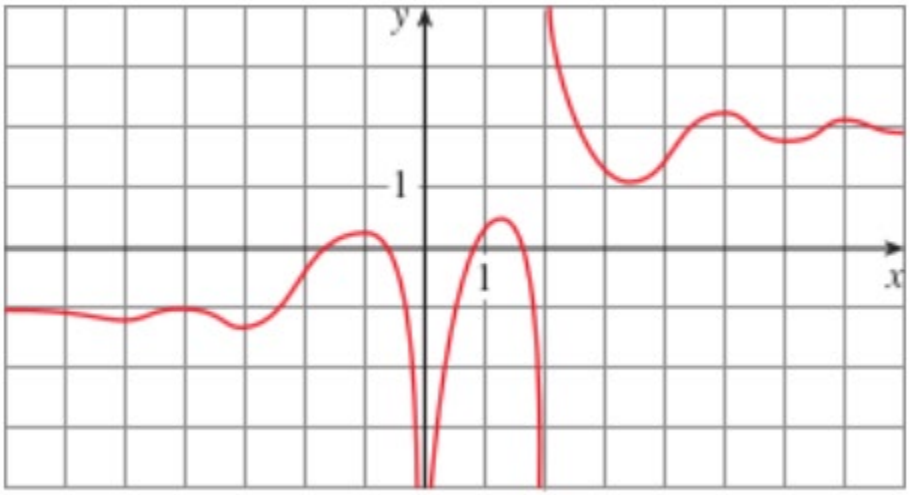
7)

$$\lim_{h \to 0} \frac{(h-3)^2 - 9}{h}$$

8) Sketch the graph of a function *f* that is defined on $\mathbb{R}$ and continuous and has a removable discontinuity at 3, and a jump discontinuity at −2.



9) For the function *g* whose graph is given state the following:



a. $\lim_{x \to 2^+} f(x)$

b. $\lim_{x \to \infty} f(x)$

c. $\lim_{x \to -\infty} f(x)$

10)

$$\lim_{t \to -\infty} \frac{3t^2 + t}{t^3 - 4t + 1}$$