Name: _____ **Class:** _____ **Date:** _____ **ID: A**

03-06-L'Hospital's Rule

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which description below best describes the following limit?

$$\lim_{x \to 1} \frac{\sin(x^2 - 1)}{\ln(x)}$$

a. Indeterminate form of the type $\frac{\infty}{\infty}$

b. Indeterminate form of the type $\frac{0}{0}$

c. Determinate form

____ 2. Which description below best describes the following limit?

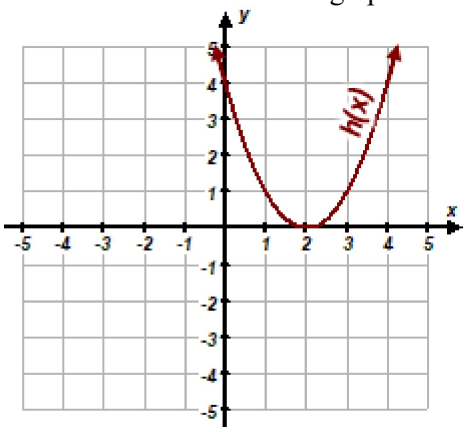
$$\lim_{x \to \infty} \frac{2^x}{\ln(x)}$$

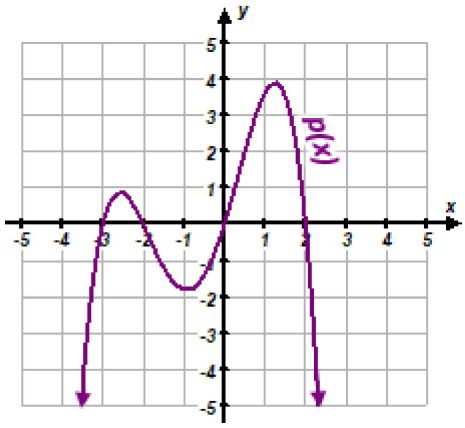
a. Indeterminate form of the type $\frac{\infty}{\infty}$

b. Indeterminate form of the type $\frac{0}{0}$

c. Determinate form

____ 3. Consider the two functions graphed below:





Which description below best describes the following limit?

$$\lim_{x \to 2} \frac{h(x)}{p(x)}$$

a. Indeterminate form of the type $\frac{\infty}{\infty}$

b. Indeterminate form of the type $\frac{0}{0}$

c. Determinate form

____ 4. Evaluate the limit.

$$\lim_{x \to 0} \frac{1 - \cos x}{x^5 + x^2}$$

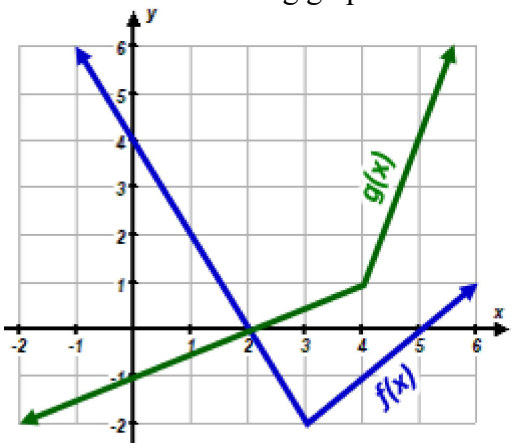
a. –5
b. 0
c. $\frac{1}{2}$
d. 1
e. π
f. ∞

____ 5. Evaluate the limit using L'Hôspital's Rule.

$$\lim_{x \to 0} \frac{1 + x - e^x}{x^2}$$

a. 0
b. $-\frac{1}{4}$
c. $-\frac{1}{2}$
d. -2
e. -4
f. ∞

____ 6. Consider the following graphs of the functions *g(x)* and *f(x)*.



Based on the graph, evaluate the limit using L'Hôspital's Rule.

$$\lim_{x \to 2} \frac{f(x)}{g(x)}$$

a. -4

b. -2

c. $-\frac{1}{2}$

d. 0

e. $\frac{1}{4}$

f. ∞

03-06-L'Hospital's Rule
Answer Section

MULTIPLE CHOICE

1.	ANS: B	PTS: 1	REF:	Matt's Math Labs ©
2.	ANS: A	PTS: 1	REF:	Matt's Math Labs ©
3.	ANS: B	PTS: 1	REF:	Matt's Math Labs ©
4.	ANS: C	PTS: 1	REF:	GSU Calculus
5.	ANS: C	PTS: 1	REF:	Matt's Math Labs ©
6.	ANS: A	PTS: 1	REF:	Matt's Math Labs ©