

Math Quiz Demo

Dr. D. P. Story

Name: \_\_\_\_\_

SSN: \_\_\_\_\_

1. Calculate the limit, if it exists, otherwise, state that it does not exist (d.n.e.).

$$\lim_{x \rightarrow 3} \frac{\sqrt{3x}(x^2 - 4)^2}{x^2 - 2x - 1}.$$

75

$\frac{75}{2}$

25

d.n.e.

2. Calculate the limit, if it exists, otherwise, state that it does not exist (d.n.e.).

$$\lim_{t \rightarrow 2} \frac{t^2 - 4}{t - 2}.$$

2

$+\infty$

4

d.n.e.

3. Calculate the limit, if it exists, otherwise, state that it does not exist (d.n.e.).

$$\lim_{t \rightarrow 2^-} \frac{t^2}{t - 2}.$$

$-\infty$

$+\infty$

4

d.n.e.

4. Using one-sided limit techniques, determine whether the limit  $\lim_{x \rightarrow 2} f(x)$ , where

$$f(x) = \begin{cases} |x^2 - 5| & \text{for } x \leq 2 \\ \frac{x - 2}{x - 2} & \text{for } x > 2 \end{cases}$$

If the limit exists, state its value.

-1

0

1

d.n.e.

5. Calculate the limit, if it exists, otherwise, state that it does not exist (d.n.e.).

$$\lim_{x \rightarrow -2} \frac{\sqrt{x+8} - \sqrt{6}}{x+2}$$

$$\frac{1}{\sqrt{6}} \qquad \frac{\sqrt{6}}{12} \qquad \frac{1}{2} \qquad \text{d.n.e.}$$

6. There is some function  $f$  and some number  $a$  in the domain of  $f$  such that

$$f'(a) = \lim_{x \rightarrow -2} \frac{\sqrt{x+8} - \sqrt{6}}{x+2}$$

Name the function  $f$  and the number  $a$ .

$$f(x) = \sqrt{x+8}; a = -2$$

$$f(x) = \sqrt{x}; a = -2$$

$$f(x) = \sqrt{x+8}; a = 0$$

$$f(x) = \sqrt{x+8}; a = 2$$