1. Based on the information below, which of the following statements is always true?

$$f(x) \text{ approaches } \infty \text{ as } x \text{ approaches } 3.$$

  A. $f(x)$ is close to or exactly 3 when x is large enough.

  B. $f(x)$ is close to or exactly ∞ when x is large enough.

  C. x is undefined when $f(x)$ is close to or exactly ∞.

  D. $f(x)$ is undefined when x is close to or exactly 3.

  E. None of the above are always true.

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2. For the graph below, find the value(s) a that makes the statement true: $\lim_{x \to a} f(x) = 0$.
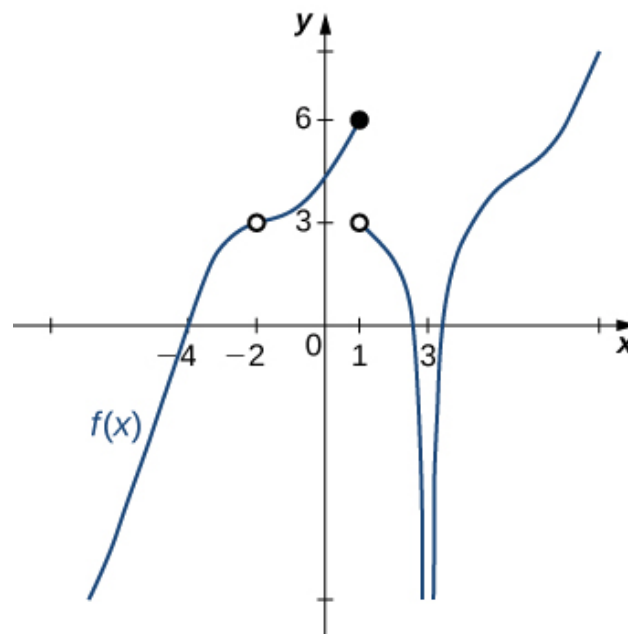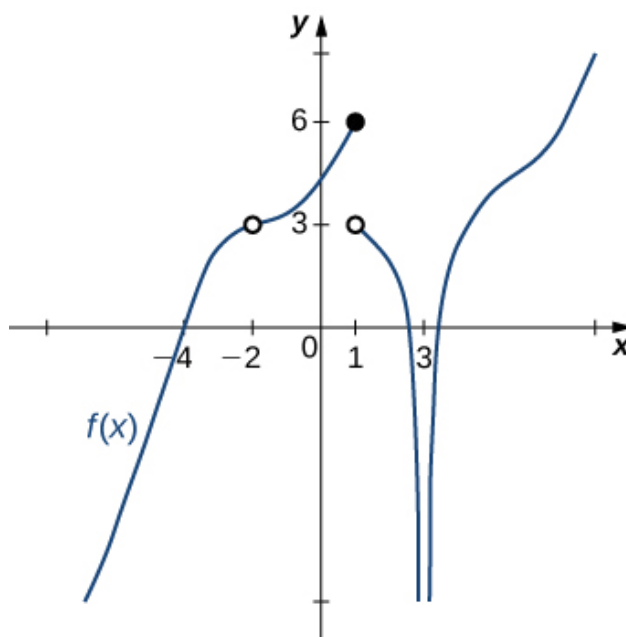

  A. 3

  B. 0

  C. -4

  D. Multiple a make the statement true.

  E. No a make the statement true.

3. Evaluate the limit below, if possible.

$$\lim_{x \to 4} \frac{\sqrt{9x - 20} - 4}{6x - 24}$$

   A. ∞

   B. 0.125

   C. 0.188

   D. 0.500

   E. None of the above

4. For the graph below, find the value(s) a that makes the statement true: $\lim_{x \to a} f(x) = 3$.

   A. -2

   B. $-\infty$

   C. 1

   D. Multiple a make the statement true.

E. No a make the statement true.

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5. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x \to -5^+} \frac{-9}{(x+5)^6} + 3$$

A. ∞

B. $-\infty$

C. $f(-5)$

D. The limit does not exist

E. None of the above

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6. To estimate the one-sided limit of the function below as x approaches 4 from the left, which of the following sets of numbers should you use?

$$\frac{\frac{4}{x} - 1}{x - 4}$$

A. $\{4.0000, 3.9000, 3.9900, 3.9990\}$

B. $\{4.1000, 4.0100, 4.0010, 4.0001\}$

C. $\{4.0000, 4.1000, 4.0100, 4.0010\}$

D. $\{3.9000, 3.9900, 4.0100, 4.1000\}$

E. $\{3.9000, 3.9900, 3.9990, 3.9999\}$

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7. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x \to -1^-} \frac{2}{(x-1)^4} + 6$$

A. $f(-1)$

B. ∞

   C. $-\infty$

   D. The limit does not exist

   E. None of the above

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8. Based on the information below, which of the following statements is always true?

    As x approaches 8, $f(x)$ approaches 19.319.

    A. $f(x) = 8$ when x is close to 19.319

    B. $f(x) = 19.319$ when x is close to 8

    C. $f(x)$ is close to or exactly 19.319 when x is close to 8

    D. $f(x)$ is close to or exactly 8 when x is close to 19.319

    E. None of the above are always true.

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9. To estimate the one-sided limit of the function below as x approaches 2 from the left, which of the following sets of numbers should you use?

    $$\frac{\frac{2}{x} - 1}{x - 2}$$

    A. $\{2.0000, 1.9000, 1.9900, 1.9990\}$

    B. $\{1.9000, 1.9900, 2.0100, 2.1000\}$

    C. $\{2.0000, 2.1000, 2.0100, 2.0010\}$

    D. $\{1.9000, 1.9900, 1.9990, 1.9999\}$

    E. $\{2.1000, 2.0100, 2.0010, 2.0001\}$

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10. Evaluate the limit below, if possible.

     $$\lim_{x \to 5} \frac{\sqrt{8x - 15} - 5}{4x - 20}$$

     A. 0.100

    B. ∞

    C. 0.200

    D. 0.025

    E. None of the above