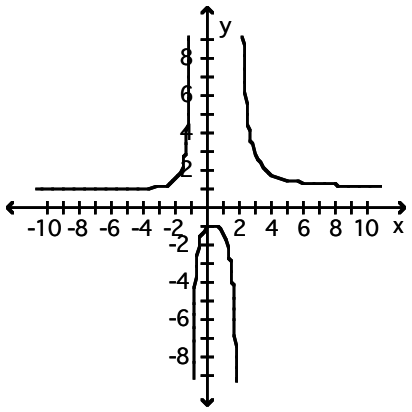
Rational Functions (Asymptotes)

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use the graph of the rational function shown to complete the statement.

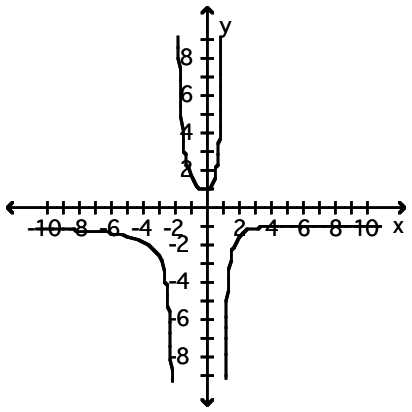
1) 1) _____



As $x \to 2^+$, $f(x) \to$?

A) 1 B) $+\infty$ C) -2 D) $-\infty$

2) 2) _____



As $x \to -2^-$, $f(x) \to$?

A) 1 B) $+\infty$ C) $-\infty$ D) -1

Find the vertical asymptotes, if any, of the graph of the rational function.

3) $h(x) = \dfrac{x}{x - 1}$ 3) _____

A) $x = 0$ and $x = 1$ B) $x = 0$ and $x = -1$

C) $x = 1$ D) no vertical asymptote

4) $h(x) = \dfrac{x + 4}{x^2 - 16}$ 4) _____

A) $x = 4, x = -4$ B) $x = 4$

C) $x = -4$ D) no vertical asymptote

5) $\frac{x-16}{x^2-13x+36}$ 5) _____

A) $x=-4, x=-9$ B) $x=-16$

C) $x=4, x=9, x=-16$ D) $x=4, x=9$

Find the horizontal asymptote, if any, of the graph of the rational function.

6) $f(x)=\frac{20x}{5x^2+1}$ 6) _____

A) $y=4$ B) $y=0$

C) $y=\frac{1}{4}$ D) no horizontal asymptote

7) $g(x)=\frac{5x^2-9x-8}{3x^2-4x+2}$ 7) _____

A) $y=0$ B) $y=\frac{9}{4}$

C) $y=\frac{5}{3}$ D) no horizontal asymptote

8) $h(x)=\frac{-5x-1}{3x+3}$ 8) _____

A) $y=-5$ B) $y=-\frac{5}{3}$

C) $y=-\frac{1}{3}$ D) no horizontal asymptote

9) $h(x)=\frac{15x^3}{3x^2+1}$ 9) _____

A) $y=0$ B) $y=5$

C) $y=\frac{1}{5}$ D) no horizontal asymptote

10) $f(x)=\frac{-10x}{5x^3+x^2+1}$ 10) _____

A) $y=-\frac{1}{2}$ B) $y=0$

C) $y=-2$ D) no horizontal asymptote

Answer Key
Testname: RATIONAL FUNCTIONS (ASYMPTOTES)

1) B
2) C
3) C
4) B
5) D
6) B
7) C
8) B
9) D
10) B