

3.6

Rational Functions and their Graphs

- 1) If $y = 3$ is the horizontal asymptote of the function $f(x) = \frac{ax + 12}{2x - 5}$, then the x -intercept of the graph of f is

- A) - 2
- B) $-\frac{1}{2}$
- C) $\frac{5}{2}$
- D) 3
- E) 6

- 2) If $x = 2$ is the vertical asymptote of the function $r(x) = \frac{3 - (a + 1)x}{4 - ax}$, then its horizontal asymptote is

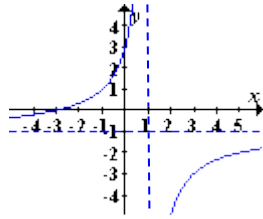
- A) $y = \frac{3}{2}$
- B) $y = -\frac{2}{3}$
- C) $y = \frac{3}{4}$
- D) $y = 3$
- E) $y = 2$

- 3) The graph of $f(x) = \frac{(2a-1)x+1}{ax-6}$ has the line $x=2$ as vertical asymptote, then it has a horizontal asymptote

- (a) $y = 5/3$
- (b) $y = 2/3$
- (c) $y = 3/2$
- (d) $y = 1/3$
- (e) $y = 2$

4) If the graph of the rational function $f(x) = \frac{ax+c}{1-bx}$ is as given below, then the value of $a + b + c$ is equal to

- (a) 5
- (b) -1
- (c) -2
- (d) 6
- (e) 1



6) If $y = -3$ is a horizontal asymptote for graph of $g(x) = \frac{(Ax^2 + x + 2)(x + 3)}{(2x^2 - x - 1)(x - 3)}$, then the vertical asymptote

- (a) are $x=1$ and $x=3$
- (b) is $x=1$
- (c) are $x=1$ and $x=-1/2$
- (d) are $x=1$ and $x=1/2$
- (e) is $x=1/2$

7) The asymptotes of the graph of the function $f(x) = \frac{x^2 - x - 2}{x^6 + x - 6}$ are

- (a) one vertical and one horizontal
- (b) two vertical and one horizontal
- (c) two vertical asymptotes
- (d) one horizontal asymptote only
- (e) one vertical and two horizontal

8) The asymptotes of the graph of the function $f(x) = \frac{x^2 - x - 2}{x^6 + x - 6}$ are

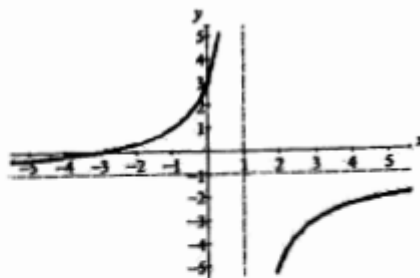
- (f) one vertical and one horizontal
- (g) two vertical and one horizontal
- (h) two vertical asymptotes
- (i) one horizontal asymptote only
- (j) one vertical and two horizontal

9) The rational function $f(x) = \frac{ax^2 + 2x + 1}{bx - 4}$ has a horizontal asymptote if

- (a) $a = 0, b \neq 0$
- (b) $a \neq 0, b = 0$
- (c) $a \neq 0, b \neq 0$
- (d) $a = 0, b = 0$
- (e) a, b are any real number

10) If the graph of the rational function $f(x) = \frac{ax + c}{1 - bx}$ is as given

below, then the value of $a + b + c$ is equal to :



- (A) 5
- B) -1
- C) -2
- D) 6

11) Which one of the following functions has the graph given below?

A) $f(x) = \frac{3-x}{4-x}$

B) $f(x) = \frac{2-3x}{4-x}$

C) $f(x) = \frac{x-3}{x-4}$

D) $f(x) = \frac{6-3x}{4-x}$

E) $f(x) = \frac{3x-12}{4x-16}$

