

04-07 Sample Quiz - Graphing Rational Functions**Multiple Choice**

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

_____ 1. Identify any **vertical asymptotes** and **points of discontinuity** of $f(x) = \frac{x^3 + 4x^2 + 4x}{x^2 + 5x + 6}$.

a. **Vertical Asymptote:** $x = -3$
Point Discontinuity: $x = -2$

c. **Vertical Asymptote:** $x = 3$
Point Discontinuity: $x = 2$

b. **Vertical Asymptote:** $x = -3$ and $x = 0$
Point Discontinuity: $x = 3$

d. **Vertical Asymptote:** $x = 3$
Point Discontinuity: $x = -3$ and $x = 0$

_____ 2. Which is the only function that has **different Vertical Asymptotes** from the rest of the functions below?

a. $a(x) = \frac{x-1}{x^2-4}$

c. $c(x) = \frac{x-2}{x^2-4}$

b. $b(x) = \frac{x^2-4x+3}{(x+2)(x-2)}$

d. $d(x) = \frac{x^2-4x+3}{(x+2)(x-2)(x-3)}$

_____ 3. Identify any **horizontal asymptotes** of the function, $f(x) = \frac{2x^2 - 3x + 2}{x^2 - 1}$.

a. $y = 0$

c. $y = 2$

b. $y = 1$

d. None

_____ 4. Consider the function $f(x) = \frac{4x^5}{3x+2}$ find any **horizontal asymptotes**, if they exist.

a. $y = -\frac{2}{3}$

c. $y = \frac{4}{3}$

b. $y = 0$

d. None

_____ 5. Which is the only function that has **different Horizontal Asymptotes** from the rest of the functions below?

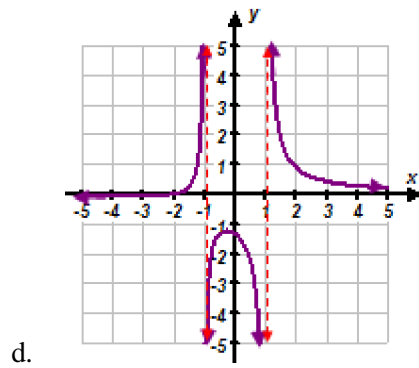
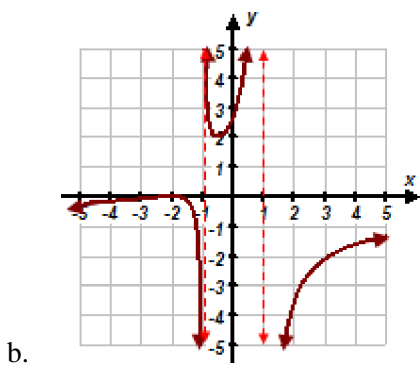
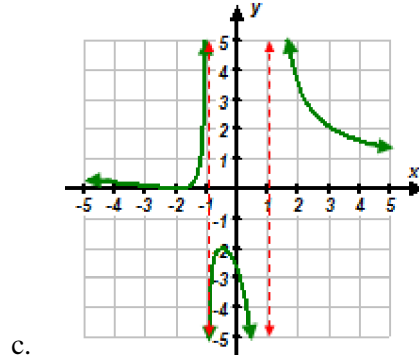
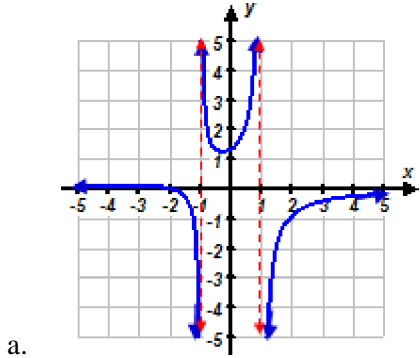
a. $a(x) = \frac{3x^2 - x - 4}{2x^2 - 8}$

c. $c(x) = \frac{3x^4 - 7x^2 - 6}{(2x^2 - 1)(x^2 - 2)}$

b. $b(x) = \frac{3x^3 - 7x + 4}{(2x^2 - 1)(x^2 - 2)}$

d. $d(x) = \frac{3x^3 - x - 4}{2x^3 - 8x^2 + 1}$

_____ 6. Graph the rational function $f(x) = \frac{-2(x+2)^2}{3(x+1)(x-1)}$



_____ 7. Which graph shows the correct asymptotes associated with the function, $f(x) = \frac{-3x}{x^2 - 9}$?

