

More Rational Functions and Equations Practice



<p>1) What are the vertical asymptotes for the following function?</p> $\frac{4x^2 - 4x - 12}{x^2 - 36}$ <p>V.A. $x = 6, x = -6$</p>	<p>2) What are the horizontal asymptotes for the following function?</p> $\frac{4x^2 - 4x - 12}{x^2 - 36}$ <p>H.A. $y = 4$</p>
<p>3) If c represents a constant, for what value does the function below have a vertical asymptote of $x = 3$?</p> $\frac{6}{cx - 18}$ <p>$c = 6$</p>	<p>4) If c represents a constant, for what value does the function below have a horizontal asymptote of $y = 3$?</p> $\frac{3x^2 + x - 3}{x^c - 1}$ <p>$c = 2$</p>
<p>5) Find the Domain, Range and asymptotes for the following rational function.</p> $f(x) = \frac{1}{x + 3} - 6$ <p>V.A. $x = -3$ H.A. $y = -6$</p>	<p>6) Find the Domain, Range and asymptotes for the following rational function.</p> $g(x) = \frac{x^2 - 10x + 24}{x^2 - 24x - 81}$ <p>D: $\mathbb{R}, x \neq 27, -3$ R: $\mathbb{R}, y \neq 1$ V.A. $x = 27, -3$ H.A. $y = 1$</p>
<p>7) What are the zeros of the following function?</p> $f(x) = \frac{6x^2 - 54}{x^2 - 1}$ <p>$(3, 0) + (-3, 0)$ or $x = 3, -3$</p>	<p>8) Identify the asymptotes.</p> $f(x) = \frac{6x^2 - 54}{x^2 - 1}$ <p>V.A. $x = 1, x = -1$ H.A. $y = 6$</p>
<p>9) For which values of x is the expression undefined?</p> $\frac{6x^2 - 24}{2x^2 - x - 3}$ <p>undefined when $x = \frac{3}{2} + -1$</p>	<p>10) For which values of x is the expression undefined?</p> $\frac{x^2 - 10x + 9}{x^2 + 14x - 32}$ <p>undefined when $x = -16 + 2$</p>

11) If y varies inversely as x , and $y = 5$ when $x = 3$, write the equation that represents this function.

$$y = \frac{15}{x}$$

12) If y varies directly as x , and $y = 12$ when $x = 2$, write the equation that represents this function.

$$y = 6x$$

13) Solve the following rational equation:

$$\frac{1}{n} + \frac{5}{n^2 + n} = 2$$

$$n = \frac{3}{2} + -2$$

14) Solve the following rational equation:

$$\frac{1}{2k+6} + \frac{1}{2} = \frac{k+4}{2}$$

$$k = -2 + -4$$

15) Solve the following rational equation:

$$\frac{2}{3n^2} + \frac{n-3}{3n} = \frac{2n+2}{n}$$

$$n = \left\{ \frac{1}{5}, -2 \right\}$$

16) For which values of x would this equation be undefined?

$$\frac{x^2 - 36}{x - 6} = x + 6$$

undefined when $x = 6$