

Unit 3: Rational Functions and Equations

CONCEPT

Name: _____ Date: _____

Solve each problem and write your short exact answer on the line. Use plain-text notation (fractions like $\frac{3}{4}$, pairs like $(3, -4)$).

1. Find the value of x that is excluded from the domain of the rational function $f(x) = \frac{1}{x-5}$.

Answer: _____

2. Find the value of x that makes the denominator zero for $f(x) = \frac{7}{x+3}$.

Answer: _____

3. Evaluate the rational function $f(x) = \frac{x+4}{x-1}$ at $x = 3$.

Answer: _____

4. What is the equation of the vertical asymptote of $f(x) = \frac{2}{x-6}$? Give it as $x =$ a number.

Answer: _____

5. What is the equation of the horizontal asymptote of $f(x) = \frac{3}{x+2}$? Give it as $y =$ a number.

Answer: _____

6. Solve the rational equation: $\frac{6}{x} = 3$. Find x .

Answer: _____

7. Solve the rational equation: $\frac{1}{x-2} = \frac{1}{5}$. Find x .

Answer: _____

8. Simplify the rational expression $\frac{2x}{4x}$ to lowest terms (x is not 0).

Answer: _____

9. Evaluate the rational function $f(x) = \frac{10}{x^2+1}$ at $x = 3$.

Answer: _____

10. Solve the rational equation: $\frac{8}{x+1} = 2$. Find x .

Answer: _____

11. Find the y -intercept of $f(x) = \frac{6}{x+2}$. Give the value of $f(0)$.

Answer: _____

12. For $f(x) = \frac{x-3}{x+4}$, find the x -value where the numerator equals zero (the zero of the function).

Answer: _____