

Unit 3: Rational Functions and Equations

PRACTICE · SET 2

Name: _____ Date: _____

Solve each problem and give an exact answer. Use plain-text notation (fractions like $3/4$, coordinate pairs like $(2, 4)$); state excluded values or "none" where asked.

1. List all excluded values (values of x that make the denominator 0) of the rational expression $(x + 5)/(x^2 - 25)$.

Answer: _____

3. Find the equation of the vertical asymptote of $f(x) = (x + 4)/(x - 7)$.

Answer: _____

5. Find the x -intercept of $f(x) = (x - 6)/(x + 2)$. Give the answer as the x -value.

Answer: _____

7. Find the equation of the horizontal asymptote of $f(x) = (5x)/(2x^2 + 3)$.

Answer: _____

9. Simplify $(x^2 + 5x + 6)/(x + 2)$ and then evaluate the result at $x = 4$.

Answer: _____

11. Solve for x : $1/x + 1/2 = 3/4$.

Answer: _____

2. Find the equation of the horizontal asymptote of $f(x) = (3x^2 + 2)/(x^2 - 1)$.

Answer: _____

4. Evaluate $(2x + 1)/(x - 3)$ when $x = 5$. Give your answer as a fraction.

Answer: _____

6. The function $f(x) = (x^2 - 4)/(x - 2)$ has a hole (removable discontinuity). Give the coordinates (x, y) of the hole.

Answer: _____

8. Solve for x : $3/x = 6/(x + 2)$.

Answer: _____

10. Multiply and simplify $(2/x) \times (x^2/6)$, then evaluate the result at $x = 9$.

Answer: _____

12. Find the equation of the horizontal asymptote of $f(x) = (4x^3)/(2x^3 - x)$.

Answer: _____