

Rational expressions & equations practice (5.4, 5.5)

Which x-values are NOT part of the domain?

1) $\frac{x^2 - 11x + 30}{x^2 - 36}$

2) $\frac{5n - 30}{n^2 - 8n + 12}$

3) $\frac{2v^3 + 2v^2 - 12v}{v^3 + v^2 - 9v - 9}$

4) $\frac{12v^3 - 6v^2 - 36v}{42v^3 - 42v}$

5) $(x - 6) \cdot \frac{63x^2 + 9x}{42x^2 + 6x}$

6) $\frac{15n^2}{2n} \div \frac{1}{2n}$

7) $(5x + 3) \div \frac{15x^2 + 29x + 12}{18x + 24}$

8) $6b \div \frac{10b^2 - 20b}{10b}$

9) $\frac{3x + 9}{4x + 8} \div \frac{3x + 9}{6x^2}$

10) $(x + 5) \cdot \frac{5x + 3}{20x^2 + 12x}$

Solve each equation. Remember to check for extraneous solutions.

$$11) \frac{5}{4r^2 - 10r + 6} + \frac{1}{4r - 6} = \frac{1}{4r^2 - 10r + 6}$$

$$12) \frac{1}{x} + \frac{1}{x^2 + 5x} = \frac{2}{x^2 + 5x}$$

$$13) 1 = \frac{1}{2} + \frac{3}{2v - 6}$$

$$14) \frac{1}{6m} = 5 + \frac{1}{m}$$

$$15) \frac{1}{3a - 6} = \frac{1}{a^2 - a - 2} + \frac{1}{3}$$

$$16) \frac{x}{x^2 - 11x + 30} = \frac{x + 5}{x - 5} - \frac{x^2 + 2x - 3}{x^2 - 11x + 30}$$

$$17) 1 - \frac{x - 6}{x} = \frac{x + 1}{x + 6}$$

$$18) \frac{6}{r^2 - 1} = \frac{1}{r - 1} + 1$$

Answers to Rational expressions & equations practice (5.4, 5.5)

1) $\{6, -6\}$

2) $\{6, 2\}$

3) $\{3, -3, -1\}$

4) $\{0, 1, -1\}$

5) $\left\{0, -\frac{1}{7}\right\}$

6) $\{0\}$

7) $\left\{-\frac{4}{3}, -\frac{3}{5}\right\}$

8) $\{0, 2\}$

9) $\{-2, 0, -3\}$

10) $\left\{0, -\frac{3}{5}\right\}$

11) $\{-3\}$

12) $\{-4\}$

13) $\{6\}$

14) $\left\{-\frac{1}{6}\right\}$

15) $\{0\}$

16) $\left\{-\frac{27}{4}\right\}$

17) $\{9, -4\}$

18) $\{2, -3\}$