

Rational Equations

Raise My
Marks

RaiseMyMarks.com

July 4, 2024

Review of Rational Functions and Rational Equations

1. Simplify and identify all the restrictions for the following rational functions.

(a)

$$\frac{3x^2 - 13x - 10}{3x + 2}$$

(b)

$$\frac{3y - 3x}{4x - 4y}$$

(c)

$$\frac{2p}{r} \times \frac{10q}{8p}$$

(d)

$$\frac{d^2 + 3d + 2}{2d + 2} \times \frac{2d + b}{d^2 + 5d + 6}$$

(e)

$$\frac{a^3}{b^4} \div \frac{a^3}{b^3}$$

(f)

$$\frac{\frac{4-x^2}{6}}{\frac{x-2}{2}}$$

(g)

$$\frac{a-3}{a-4} \div \frac{30}{a+3} \times \frac{5a-20}{a^2-9}$$

(h)

$$\frac{4}{5x} + \frac{3}{10x}$$

(i)

$$\frac{x}{x^2 - y^2} - \frac{y}{y^2 - x^2}$$

(j)

$$\frac{2y-1}{3y} + \frac{y-2}{2y} - \frac{y-8}{6y}$$

(k)

$$\frac{2x}{4x^2} + \frac{x}{2x^2 + 5x + 3} - \frac{1}{2x - 3}$$

2. Solve the following rational equations and state all restrictions.

(a)

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

(b)

$$\frac{x}{x - 3} = \frac{3}{x - 3} - 3$$

(c)

$$2 - \frac{5}{x^2 - x - 6} = \frac{x - 3}{x + 2}$$

(d)

$$\frac{6}{t - 3} = \frac{4}{t + 4}$$

(e)

$$\frac{3}{x + 2} + \frac{5}{x - 3} = \frac{3x}{x^2 - x - 6} - 1$$