

### 5.6 Solving Rational Equations Day 1

Solve. Check for extraneous solutions.

$$1. \frac{m-1}{5} = \frac{8}{2} \quad 2(m-1) = 40$$

$$m-1 = 20$$

$$\boxed{m = 21}$$

$$2. \frac{v-5}{v+6} = \frac{4}{9} \quad 9(v-5) = 4(v+6)$$

$$9v - 45 = 4v + 24$$

$$5v - 45 = 24$$

$$5v = 69$$

$$\boxed{v = \frac{69}{5}}$$

$$3. \frac{x+5}{5} = \frac{6}{x-2} \quad (x+5)(x-2) = 30$$

$$x^2 + 3x - 10 = 30$$

$$x^2 + 3x - 40 = 0$$

$$(x+8)(x-5) = 0$$

$$\boxed{x = 5, -8}$$

IF  $x = 5$   $\frac{10}{5} = \frac{6}{3}$  ✓  
 IF  $x = -8$   $\frac{-3}{5} = \frac{6}{-10}$  ✓

$$6. \frac{x+5}{5} = \frac{6}{x-2} \quad (x-2)(x+5) = 30$$

$$x^2 + 3x - 10 = 30$$

$$4. \frac{9}{3x} = \frac{4}{x+2} \quad 9(x+2) = 12x$$

$$9x + 18 = 12x$$

$$18 = 3x$$

$$\boxed{x = 6}$$

$$7. \frac{5}{n+1} = \frac{n-4}{10} \quad (n+1)(n-4) = 50$$

$$n^2 - 3n - 4 = 50$$

$$n^2 - 3n - 54 = 0$$

$$(n-9)(n+6) = 0$$

$$\boxed{n = -6, 9}$$

$x = -6$   $\frac{5}{-5} = \frac{-10}{10}$  ✓  
 $x = 9$   $\frac{5}{10} = \frac{5}{10}$  ✓

$$5. \frac{8}{3x-2} = \frac{2}{x-1} \quad 8(x+1) = 2(3x-2)$$

$$8x - 8 = 6x - 4$$

$$2x - 8 = -4$$

$$2x = 4$$

$$\boxed{x = 2}$$

$$8. \frac{x-3}{x+5} = \frac{x}{x+2} \quad (x+2)(x-3) = x(x+5)$$

$$x^2 - x - 6 = x^2 + 5x$$

$$-x - 6 = 5x$$

$$-6 = 6x$$

$$\boxed{x = -1}$$

### 5.7 Solving Rational Equations Day 2

Solve. Check for extraneous solutions.

$$1. \frac{1}{6b^2} + \frac{1}{6b} = \frac{1}{b^2}$$

$$\frac{1}{6b^2} + \frac{b}{6b^2} = \frac{6}{6b^2}$$

$$3. \frac{1}{v} + \frac{3v+12}{v^2-5v} = \frac{7v-56}{v^2-5v}$$