

$$\text{Solve: } \frac{2}{p+2} + \frac{4}{p-2} = \frac{p-1}{p^2-4}.$$

$$\text{Solve: } \frac{4}{q-4} - \frac{3}{q-3} = 1.$$

$$\text{Solve: } \frac{m+11}{m^2-5m+4} = \frac{5}{m-4} - \frac{3}{m-1}.$$

$$\text{Solve: } \frac{n}{12} + \frac{n+3}{3n} = \frac{1}{n}.$$

Solve: $\frac{y}{y+6} = \frac{72}{y^2-36} + 4.$

$x \neq \pm 1$

$LCD = 12(x-1)(x+1)$

Solve: $\frac{x}{2x-2} - \frac{2}{3x+3} = \frac{5x^2-2x+9}{12x^2-12}$

(Handwritten annotations: $12(x-1)(x+1)$ above the first fraction, $12(x+1)(x-1)$ above the second fraction, and $12(x+1)(x-1)$ below the denominator of the right-hand side.)

$x(6)(x+1) - 2(4)(x-1) = 5x^2 - 2x + 9$

$6x(x+1) - 8(x-1) = 5x^2 - 2x + 9$

$6x^2 + 6x - 8x + 8 = 5x^2 - 2x + 9$

$6x^2 - 2x + 8 = 5x^2 - 2x + 9$

Solve: $\frac{z}{2z+8} - \frac{3}{4z-8} = \frac{3z^2-16z-16}{8z^2+16z-64}$

(Handwritten annotations: $8(z+4)(z-2)$ above the first fraction, $4(z-2)$ above the second fraction, and $8(z^2+2z-8)$ above the denominator of the right-hand side.)

$z(4)(z-2) - 3(2)(z+4) = 3z^2 - 16z - 16$

$4z(z-2) - 6(z+4) = 3z^2 - 16z - 16$

$4z^2 - 8z - 6z - 24 = 3z^2 - 16z - 16$

$4z^2 - 14z - 24 = 3z^2 - 16z - 16$

$z^2 + 2z - 8 = 0$

$(z+4)(z-2) = 0$

$z = -4 \quad z = 2$
No Solution

$x^2 - 1 = 0$
 $(x+1)(x-1) = 0$
 $x = -1 \quad x = 1$
No Solution

$z \neq -4, 2$

$LCD = 8(z+4)(z-2)$

$\frac{z \cdot 8 \cdot (z+4)(z-2)}{2(z+4)}$

$4 \cdot z(z-2)$

Solving for a Specific Variable

Solve: $\frac{D}{T} = R$ for T .

$$\frac{m(y-3)}{m} = \frac{x-2}{m}$$

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

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

Solve: $\frac{y-2}{x+1} = \frac{2}{3}$ for x .

$$3(y-2) = \left(\frac{2}{3}(x+1)\right) \cdot 3$$

$$3y-6 = 2x+2$$

$$3y-8 = 2x$$

$$x = \frac{3y-8}{2}$$

Solve $\frac{1}{c} + \frac{1}{m} = 1$ for c .

$$m + c = cm$$

$$m = cm - c$$

$$m = c(m-1)$$

$$c = \frac{m}{m-1}$$

Solve: $\left(\frac{y-3}{x-2}\right) \frac{y-3}{m} = \frac{x-2}{y-3}$ for y .

$$m(y-3) = x-2$$

$$my-3m = x-2$$

$$my = x-2+3m$$

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