

Rearranging formulae

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Worked example

Make x the subject:

$$A = 5x^2 + \pi x^2$$

$$B = \alpha x^3 - \delta x^3$$

Your turn

Make x the subject:

$$C = \pi x^2 - 3x^2$$

$$x = \pm \sqrt{\frac{C}{\pi - 3}}$$

Worked example

Make x the subject:

$$y = p - 2qx^2$$

$$y = r + 3sx^3$$

Your turn

Make x the subject:

$$y = t - 5ux^3$$

$$x = \sqrt[3]{\frac{(t - y)}{5u}}$$

Worked example

Make x the subject:

$$P = \frac{1}{2}rx^2$$

$$S = \frac{1}{3}tx^3$$

Your turn

Make x the subject:

$$Q = \frac{1}{4}ux^2$$

$$x = \pm \sqrt{\frac{4Q}{u}}$$

Worked example

Make x the subject:

$$P = \sqrt{\frac{x + y}{5r}}$$

$$Q = \sqrt[3]{\frac{x - 2y}{3t}}$$

Your turn

Make x the subject:

$$R = \sqrt{\frac{x - 3y}{4u}}$$

$$x = 4uR^2 + 3y$$

Worked example

Make x the subject:

$$P = \frac{n^2 - x}{n + x}$$

Your turn

Make x the subject:

$$R = \frac{s^2 + x}{s - x}$$

$$x = \frac{Rs - s^2}{R + 1}$$

Worked example

Make x the subject:

$$y = 3 + \frac{ax^2}{5}$$

Your turn

Make x the subject:

$$y = 2 + \frac{bx^2}{3}$$

$$x = \pm \sqrt{\frac{3(y - 2)}{b}}$$

Worked example

Make x the subject:

$$y = c - \frac{1}{3}\sqrt{x}$$

$$5d - \frac{1}{4}\sqrt[3]{x} = y$$

Your turn

Make x the subject:

$$y = 4e - \frac{1}{5}\sqrt{x}$$

$$x = 25(4e - y)^2$$

Worked example

Make x the subject:

$$\frac{1}{x} - \frac{1}{y} = \frac{1}{z}$$

Your turn

Make p the subject:

$$\frac{1}{p} + \frac{1}{q} = \frac{1}{r}$$

$$p = \frac{rq}{q - r}$$

Worked example

Make x the subject:

$$\frac{5x}{A} - \frac{b}{c} = \frac{4x - d}{a}$$

Your turn

Make p the subject:

$$\frac{3x}{E} - \frac{f}{g} = \frac{5x - h}{F}$$

$$x = \frac{EfF - Egh}{3fg - 5eg}$$

Worked example

Make x the subject:

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

$$y = x^2 - 5x + 1$$

Your turn

Make x the subject:

$$y = x^2 + 8x - 3$$

$$x = -4 \pm \sqrt{y + 19}$$

Worked example

Make x the subject:

$$y = 2x^2 + 16x - 2$$

$$y = 3x^2 - 5x + 1$$

Your turn

Make x the subject:

$$y = 2x^2 + 12x - 3$$

$$x = -3 \pm \sqrt{\frac{y + 21}{2}}$$

Worked example

Make x the subject:

$$y = \frac{1}{2}\pi c^3 \sqrt{x^2 - c^4} + 5$$

Your turn

Make x the subject:

$$y = \frac{1}{3}kc^2 \sqrt[3]{x^2 - c^5} - 4$$

$$x = \pm \sqrt{\frac{27(y+4)^3}{k^3 c^6}} + c^5$$