

Solving Equations (recap)

$$2x + 7 = 20$$

$$x = 6.5$$

$$6x - 2 = 1$$

$$x = 0.5$$

$$3(x + 8) = 33$$

$$\underline{\underline{x = 3}}$$

$$12 - 2x = 10$$

$$x = 1$$

$$3x + 5 = 21 - x$$

$$\textcircled{x = 4}$$

Changing the Subject of a formula

$$y = x + 3$$

In this equation y is the subject

$$y = x - 5$$

$$y + 5 = x$$

$$4y = 2x$$

$$2y = x$$

$$2y = 3x - 1$$

$$4t + 5 = 3x - 1$$

$$4t + 6 = 3x$$

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

$$14\pi = 4x$$

$$\frac{7\pi}{2} = x$$

$$3(x + 7) = 42$$

$$3x + 21 = 42$$

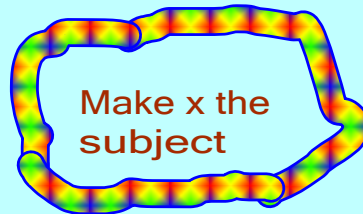
$$3x = 21$$

$$\frac{2 + x}{5} = 13$$

5

$$2 + x = 65$$

$$x = 63$$



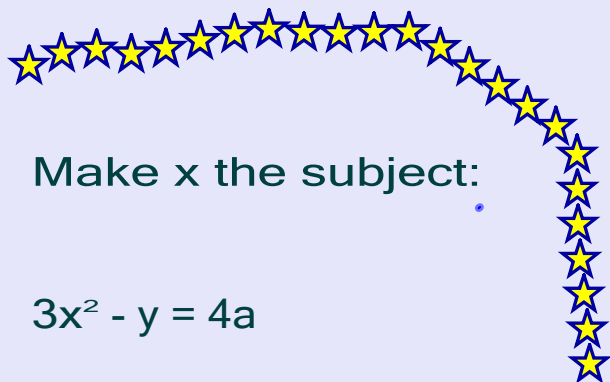
$$2y + 1 = 3x$$

$$\frac{2y + 1}{3} = x \quad \frac{1}{3}(2y + 1) = x$$

$$x = 7$$

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Changing the subject (harder!)
Fractions and squares



Make x the subject:

$$3x^2 - y = 4a$$

$$\frac{2a - b}{5} = 3x^2 - 4$$

$$\frac{a}{4} + \frac{7x}{5} = 3$$

$$5A + 28X = 60$$

$$28X = 60 - 5A$$

$$X = \frac{60 - 5A}{28}$$

$$X = \frac{60 - 5A}{28}$$

$$3x^2 - y = 4a$$

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

$$x^2 = \frac{4a + y}{3}$$

$$x = \sqrt{\frac{4a + y}{3}}$$

$$\frac{2A - B}{5} + 4 = 3x^2$$

$$\frac{1}{3} \left(\frac{2A - B}{5} + 4 \right) = x^2$$

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 page 77 D11 together
 odds only

Rearranging more complex formulae

A ball has a volume of 400cm^3 .

Find its radius.



$$V = \frac{4}{3}\pi r^3$$

$$400 = \frac{4}{3}\pi r^3$$

$$1200 = 4\pi r^3$$

$$\frac{1200}{4\pi} = r^3$$

$$\frac{300}{\pi} = r^3$$

$$r = \sqrt[3]{\frac{300}{\pi}}$$

Make x the subject:

$$y = \frac{x+4}{2x-7}$$

$$y(2x-7) = x+4$$

$$2xy - 7y = x+4$$

$$2xy - x = 4+7y$$

$$x(2y-1) = 4+7y$$

$$x = \frac{4+7y}{2y-1}$$

Make cos A the subject:

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$a^2 + 2bc \cos A = b^2 + c^2$$

$$2bc \cos A = b^2 + c^2 - a^2$$

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

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$$C4c) \quad xt^2 - \frac{k(t+1)}{x} = 0$$

$$(xx) \quad x^2t^2 - k(t+1) = 0$$

$$x^2t^2 = k(t+1)$$

$$x^2 = \frac{k(t+1)}{t^2}$$

$$x(xt^2) = x^2t^2$$

$$x = \sqrt{\frac{k(t+1)}{t^2}}$$

$$x = \frac{\sqrt{k(t+1)}}{t}$$

$$C6b \quad t = \frac{\delta(p+q)}{pq}$$

$$tpq = \delta(p+q)$$

$$tpq = \delta p + \delta q$$

$$tpq - \delta q = \delta p$$

$$q(tp - \delta) = \delta p$$

$$q = \frac{\delta p}{tp - \delta}$$

Homework
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