

# Rearranging Equations

Can you find the  
the mistake?  
1 2 3 4 5 6 7 8 9

Make x the subject of each of these equations.

|                                                                                                             |                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $y = xp$ <p><i>Solution: <math>y - p = x</math></i></p>                                                     | $y = x^3 - 4$ <p><i>Solution: <math>\sqrt[3]{y} + 4 = x</math></i></p>                                                                                                                    |
| $y^2 = x^2 + 16$ <p><i>Solution: <math>\sqrt{y^2 - 16} = x</math><br/>and so <math>y - 4 = x</math></i></p> | $2y = \frac{1}{5} axb$ <p><i>Solution: <math>\frac{1}{5} \left( \frac{2y}{ab} \right) = x</math></i></p>                                                                                  |
| $y = 3wxz^2$ <p><i>Solution: <math>\sqrt{\frac{y}{3wz}} = x</math></i></p>                                  | $y = \frac{x + 4}{x - 3}$ <p><i>Solution: <math>y(x - 3) = x + 4</math><br/>So <math>xy - 3y = x + 4</math><br/>So <math>xy - 3y - 4 = x</math></i></p>                                   |
| $y = \frac{11}{x}$ <p><i>Solution: <math>\frac{y}{11} = x</math></i></p>                                    | $xy + 3 = \frac{x}{8}$ <p><i>Solution: <math>8xy + 3 = x</math><br/>So <math>8xy - x = 3</math><br/>So <math>x(8y - 1) = 3</math> and therefore <math>x = \frac{3}{8y - 1}</math></i></p> |

# Rearranging Equations

Make  $x$  the subject of each of these equations.



Now, it's  
your  
turn to  
try!

1. Rearrange  $a(q - c) = d$  to make  $q$  the subject.

2. (a) Make  $n$  the subject of the formula  $m = 5n - 21$

(b) Make  $p$  the subject of the formula  $4(p - 2q) = 3p + 2$

3.  $P = \pi r + 2r + 2a$   
Make  $r$  the subject of the formula

4. Make  $a$  the subject of the formula  
 $2(3a - c) = 5c + 1$

5. Make  $m$  the subject of the formula  $2(2p + m) = 3 - 5m$

6. Make  $x$  the subject of  
 $5(x - 3) = y(4 - 3x)$

7.  $d = \sqrt{\frac{3h}{2}}$

Make  $h$  the subject of the formula

8.  $y = \frac{2pt}{p - t}$

Rearrange the formula to make  $t$  the subject.

9. Make  $b$  the subject of the formula  $a = \frac{2 - 7b}{b - 5}$

10.  $\frac{x}{x + c} = \frac{p}{q}$

Make  $x$  the subject of the formula.