

Rearranging Formulae: Subject Change

1. Make r the subject of $V = \frac{4}{3}\pi r^3$
 2. Make t the subject of $s = ut + \frac{1}{2}at^2$
 3. Make x the subject of $y = 2x + 5$
 4. Make a the subject of $F = ma$
 5. Make y the subject of $x = 3y - 7$
 6. Make b the subject of $A = \frac{1}{2}bh$
 7. Make n the subject of $P = nRT$
 8. Make r the subject of $C = 2\pi r$
 9. Make v the subject of $v^2 = u^2 + 2as$
 10. Make m the subject of $E = mc^2$
-

Step-by-Step Solutions

1 Step 1: Multiply both sides by 3:

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

Step 2: Divide both sides by 4π :

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

Step 3: Take the cube root of both sides

$$r = \sqrt[3]{\frac{3V}{4\pi}}$$

2. Step 1: Rearrange into standard quadratic form:

$$s = ut + \frac{1}{2}at^2$$

$$\frac{1}{2}at^2 + ut - s = 0$$

Step 2: Use the quadratic formula

$$t = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

, where

$$a = \frac{1}{2}a$$

$$b = u$$

and

$$c = -s$$

:

$$t = \frac{-u \pm \sqrt{u^2 + 2as}}{a}$$

Maths with Melissa

3.

Step 1: Subtract 5 from both sides:

$$y - 5 = 2x$$

Step 2: Divide both sides by 2:

$$x = \frac{y - 5}{2}$$

4.

Step 1: Divide both sides by m

$$a = \frac{F}{m}$$

5.

Step 1: Add 7 to both sides:

$$x + 7 = 3y$$

Step 2: Divide both sides by 3:

$$y = \frac{x + 7}{3}$$

Maths with Melissa

6.

Step 1: Multiply both sides by 2:

$$2A = bh$$

Step 2: Divide both sides by h

$$b = \frac{2A}{h}$$

7

Step 1: Divide both sides by

$$n = \frac{P}{RT}$$

8.

Step 1: Divide both sides by 2π

$$r = \frac{c}{2\pi}$$

9.

Step 1: Subtract u^2 from both sides:

$$v^2 = u^2 + 2as$$

Step 2: Take the square root:

$$v = \sqrt{u^2 + 2as}$$

10.

Step 1: Divide both sides by c^2

$$m = \frac{E}{c^2}$$