

**GCSE – Numeracy and Mathematics**

**Topic: Rearrange the formula when the subject appears in more than one term**

**Tier: Higher**

**Grade:**

**A/A\***



**Starter:**

1. Make a the subject of  
 $ab + c = d$
  
2. Make r the subject of  
 $A = \pi r^2$

**Skills:**

1. Make m the subject of  
 $5m + 5y = 4m - 12y$
  
2. Make m the subject of  
 $y = 3mt - a^2m$
  
3. Make m the subject of  
 $y = \frac{m + 4}{m + 5}$

**Top Tips!**

- When changing the subject of a formula when the subject appears more than once you will generally need to collect like terms and factorise
- There will be different ways of writing the answer

E.g. Make a the subject of

$$3a + b = ab + c$$

$$3a - ab = c - b$$

$$a(3 - b) = c - b$$

$$a = \frac{c-b}{3-b}$$

**Examination Question:**

**2013 January Link Methods Unit 1 Higher Q11b**

Make x the subject of the following formula

$$\frac{ax + b}{cx + d} = 2$$

[5]

**Assessment for Learning**

**Video / QR code**



**Topic: Rearrange the formula when the subject appears in more than one term**

**Starter:**

1. Make a the subject of  
 $ab + c = d$

$$a = \frac{d - c}{b}$$

2. Make r the subject of  
 $A = \pi r^2$

$$r = \sqrt{\frac{A}{\pi}}$$

**Skills:**

1. Make m the subject of  
 $5m + 5y = 4m - 12y$

$$m = -17y$$

2. Make m the subject of  
 $y = 3mt - a^2m$

$$m = \frac{y}{3t - a^2}$$

3. Make m the subject of

$$y = \frac{m + 4}{m + 5}$$

$$m = \frac{4 - 5y}{y - 1}$$

**Top Tips!**

- When changing the subject of a formula when the subject appears more than once you will generally need to collect like terms and factorise
- There will be different ways of writing the answer

E.g. Make a the subject of

$$3a + b = ab + c$$

$$3a - ab = c - b$$

$$a(3 - b) = c - b$$

$$a = \frac{c - b}{3 - b}$$

**Examination Question:**

**2013 January Link Methods Unit 1 Higher Q11b**

Make x the subject of the following formula

$$\frac{ax + b}{cx + d} = 2$$

$$ax + b = 2(cx + d)$$

$$ax + b = 2cx + 2d$$

$$ax - 2cx = 2d - b$$

$$x(a - 2c) = 2d - b$$

$$x = \frac{2d - b}{a - 2c}$$

**Assessment for Learning**

**Video / QR code**