

Changing the Subject: the Subject Appears Twice

1

Make x the subject of

$$ax + b = cx + d$$

every x term	everything else
$ax - cx$	$d - b$

factorise: take x out

$$\boxed{} = \boxed{}$$

divide by the bracket

$$x = \underline{\hspace{2cm}}$$

2

Make x the subject of

$$px - 3 = qx + 5$$

every x term	everything else
$px - qx$	$$

factorise: take x out

$$\boxed{} = \boxed{}$$

divide by the bracket

$$x = \underline{\hspace{2cm}}$$

3

Make x the subject of

$$ax + 2 = bx + 9$$

every x term	everything else
$$	$$

factorise: take x out

$$\boxed{} = \boxed{}$$

divide by the bracket

$$x = \underline{\hspace{2cm}}$$

4

Make x the subject of

$$5x + a = bx + c$$

every x term	everything else
$$	$$

factorise: take x out

$$\boxed{} = \boxed{}$$

divide by the bracket

$$x = \underline{\hspace{2cm}}$$

5

Make x the subject of

$$ax = bx + c$$

$$\boxed{} = \boxed{}$$

$$\boxed{} = \boxed{}$$

$$x = \underline{\hspace{2cm}}$$

6

Make x the subject of

$$x + a = bx$$

$$\boxed{} = \boxed{}$$

$$\boxed{} = \boxed{}$$

$$x = \underline{\hspace{2cm}}$$

7

Make x the subject of

$$a(x + 1) = bx + c$$

$$\underline{\hspace{2cm}}$$

$$x = \underline{\hspace{2cm}}$$

8

Make x the subject of

$$y = \frac{x + a}{x}$$

$$\underline{\hspace{2cm}}$$

$$x = \underline{\hspace{2cm}}$$

Changing the Subject: the Subject Appears Twice *further practice*

9

Make x the subject of $y = \frac{2x + 1}{x - 3}$

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$

10

Make p the subject of $5(p - q) = r(p + 2)$

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$

11

Make x the subject of $a = \sqrt{\frac{x + b}{x}}$

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$

12

Taxi A charges £ c plus £ a a mile.
Taxi B charges £ b a mile and nothing else. Find a formula for m , the number of miles for which the two taxis cost the same.

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$

13

A drink is made from j ml of cordial and w ml of water. The fraction of the drink that is cordial is $p = \frac{j}{j + w}$.

Make j the subject. How much cordial do you need with 300 ml of water to make $p = \frac{1}{4}$?

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$

14

Make y the subject of $x = \frac{y^2 + 1}{y^2 - 2}$

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$

15

Ria drives to a town at u km/h and back the same way at v km/h. Her average speed for the whole trip is $S = \frac{2uv}{u + v}$ km/h.

Make u the subject. She drove back at 40 km/h and averaged 48 km/h for the whole trip. How fast did she drive there?

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$

16

Ava and Ben make x the subject of $xy + 3 = 2x + y$. Ava gets $x = \frac{y - 3}{y - 2}$ and Ben gets $x = \frac{3 - y}{2 - y}$. Ava says one of them must be wrong. Is she right? Explain.

$$\underline{\hspace{2cm}}$$

Answer $\underline{\hspace{2cm}}$