Solve linear simultaneous equations where you need to first rearrange (e.g. 2x + 7 = y and 2x + 5y = 11)

Maths

Mrs Dennett

Solve equations where you need to first rearrange

1. Here are two equations.

$$3x + 4y + 7 = 0 \qquad \frac{5y - 3}{7} = x$$

Sara has rearranged each equation so that she can solve them simultaneously.

Can you spot her errors?

$$3x + 4y + 7 = 0 \qquad \frac{5y - 3}{7} = x$$
$$3x + 4y = 7 \qquad 35y - 21 = 7x$$
$$35y - 21 - 7x = 0$$
$$35y - 7x = 21$$

2. Rearrange and solve this pair of equations.

$$2x + 7 = y \text{ and } 2x + 5y = 11$$

3. Rearrange and solve these pairs of equations.

a) $\frac{x}{3} = y + 1$ and $4y - x = 1$

b) $3x + 4y - 17 = 0$ and $\frac{5y - 32}{7} = x$

Solve equations where you need to first rearrange

4. a) Form two equations using your knowledge of equivalent side lengths of a rectangle.

$3a - 4b$

$4a - 28$

$2b$

16
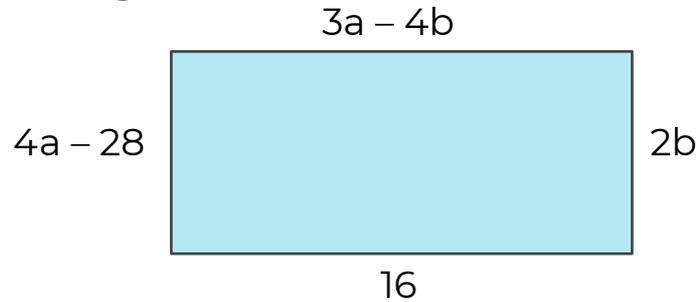
b) Solve the equations to find a and b.

Answers

Solve equations where you need to first rearrange

1. Here are two equations.

$$3x + 4y + 7 = 0 \qquad \frac{5y - 3}{7} = x$$

Sara has rearranged each equation so that she can solve them simultaneously. Can you spot her errors?

$$3x + 4y + 7 = 0 \qquad \frac{5y - 3}{7} = x$$
$$5y - 3$$
$$3x + 4y = 7 \qquad 35y - 21 = 7x$$
$$-7 \qquad 35y - 21 - 7x = 0$$
$$35y - 7x = 21$$

2. Rearrange and solve this pair of equations.

$$2x + 7 = y \text{ and } 2x + 5y = 11$$

$$x = -2$$
$$y = 3$$

Solve equations where you need to first rearrange

3. Rearrange and solve these pairs of equations.

a) $\frac{x}{3} = y + 1$ and $4y - x = 1$

$x = 15$
$y = 4$

b) $3x + 4y - 17 = 0$ and $\frac{5y - 32}{7} = x$

$x = -1$
$y = 5$

4. a) Form two equations using your knowledge of equivalent side lengths of a rectangle.

$3a - 4b = 16$
$4a - 28 = 2b$

$3a - 4b$

$4a - 28$

$2b$

16
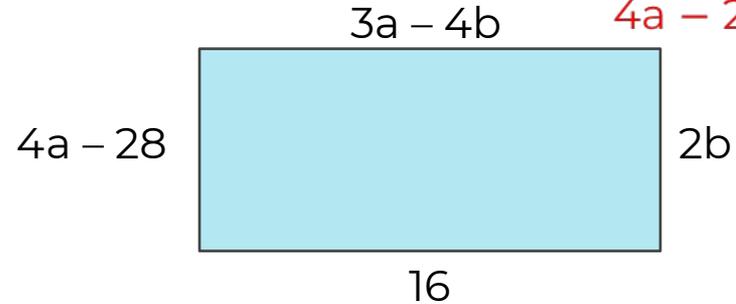
b) Solve the equations to find a and b.

$3a - 4b = 16$
$4a - 28 = 2b$

$a = 8$
$b = 2$