

Dr Oliver Mathematics

Simultaneous Equations: Part 1

1. (Non-calculator) Paige and Remy each have some chocolate eggs.

(6)

Paige says, "If I had twice as many eggs, I'd have 7 more than you."

Remy says, "If I had three times as many eggs, I'd have 4 more than you."

Both of them are correct.

Work out how many eggs Paige has.

Solution

Let p and r be the number of chocolate eggs that Paige and Remy has respectively.
Then

$$2p - r = 7 \quad (1)$$

$$3r - p = 4 \quad (2).$$

Now, $2 \times (2)$:

$$-2p + 6r = 8 \quad (3)$$

and $(1) + (3)$:

$$5r = 15 \Rightarrow r = 3$$

$$\Rightarrow 2p - 3 = 7$$

$$\Rightarrow 2p = 10$$

$$\Rightarrow p = 5.$$

Hence, Paige has 5 chocolate eggs (and Remy has 3 chocolate eggs).