

**24** John has an empty box.

He puts some red counters and some blue counters into the box.

The ratio of the number of red counters to the number of blue counters is 1 : 4

Linda takes at random 2 counters from the box.

The probability that she takes 2 red counters is  $\frac{6}{155}$

How many red counters did John put into the box?

Let the number of red counters be  $x$  and the number of blue counters be  $4x$ . The total number of counters in the box is  $5x$ .

The probability that two red counters are taken is  $\frac{1}{5} \times \frac{x-1}{5x-1} = \frac{6}{155}$ .

$$\frac{1}{5} \times \frac{x-1}{5x-1} = \frac{6}{155}$$

$$\Rightarrow \frac{155}{5}(x-1) = 6(5x-1)$$

$$\Rightarrow 31(x-1) = 30x-6$$

$$\Rightarrow 31x-31 = 30x-6$$

$$\Rightarrow x = 25$$

John put 25 red counters in the box.

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