

Questions from Vernon (16 Jan)

1. Chef Delicious bought an enormous tray of eggs. At first, Chef Delicious used 312 eggs. He used all the **remaining eggs in the tray in 20 days**, with the same number of eggs each day. During these 20 days, he used $\frac{1}{12}$ **of the tray** of eggs **in 6 days**.

How many eggs did Chef Delicious use in the 6 days?

Solution:

$$6 \text{ days} \rightarrow \frac{1}{12}$$

$$2 \text{ days} \rightarrow \frac{1}{12} \div 3 = \frac{1}{12} \times \frac{1}{3} = \frac{1}{36}$$

$$20 \text{ days} \rightarrow \frac{1}{36} \times 10 = \frac{10}{36} = \frac{5}{18} \text{ (remaining eggs)}$$

$$1 - \frac{5}{18} = \frac{13}{18} \text{ (at first)}$$

$$\frac{13}{18} \text{ of the tray} \rightarrow 312 \text{ eggs}$$

$$\frac{18}{18} \text{ of the tray} \rightarrow 432 \text{ eggs}$$

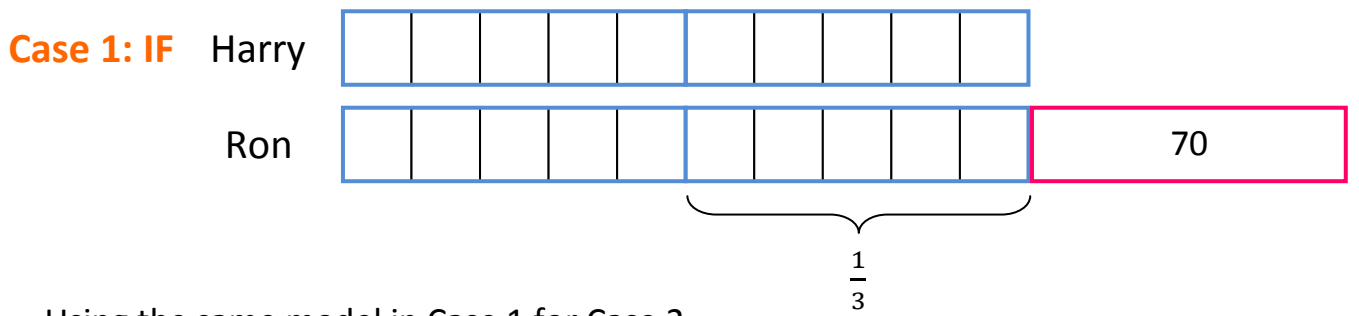
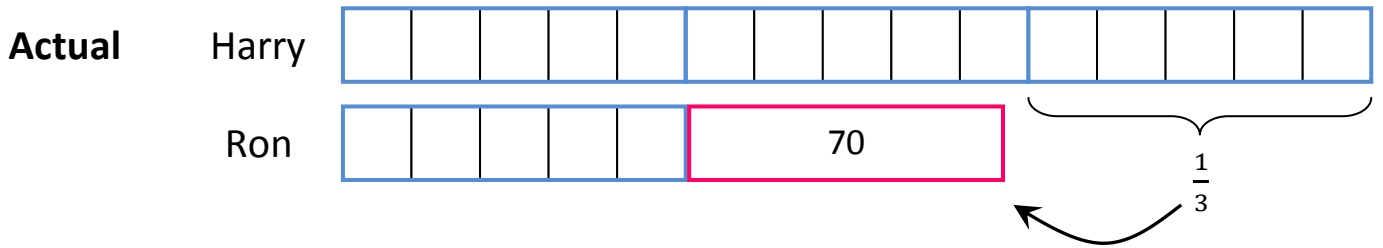
$$\frac{1}{12} \text{ of the tray} \rightarrow 432 \div 12 = 36 \text{ eggs}$$

ANS: Chef Delicious used 36 eggs in the 6 days.

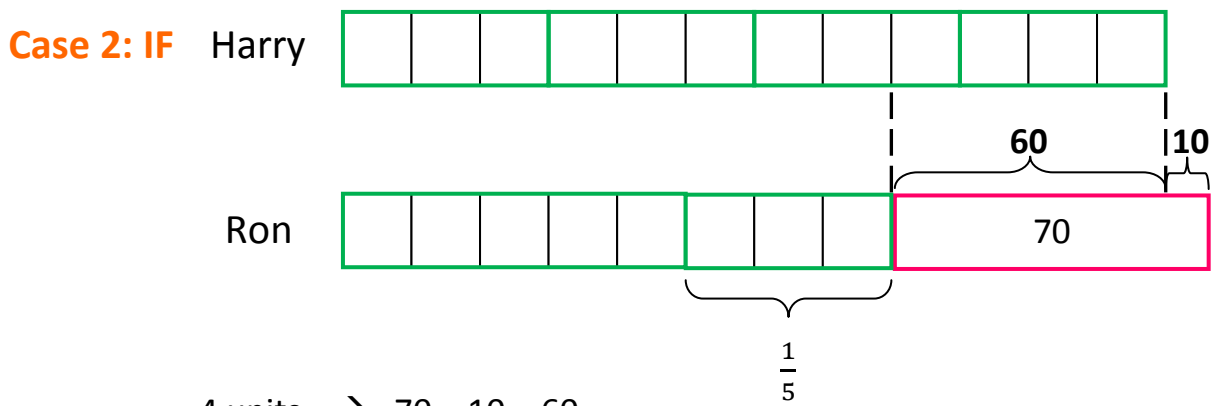
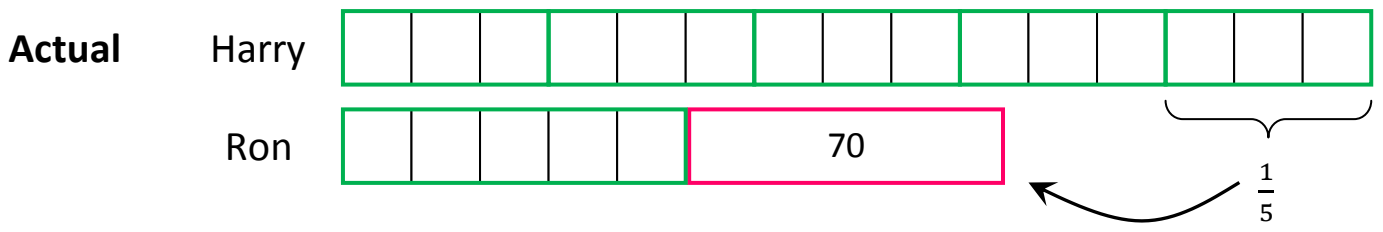
2. Harry and Ron collected some magic wands.
 If Harry gave $\frac{1}{3}$ of his magic wands to Ron, Ron would have 70 more magic wands than Harry.
 If Harry gave $\frac{1}{5}$ of his magic wands to Ron, Ron would have 10 more magic wands than Harry.
 How many magic wands did Harry collect?

Solution:

LCM of 3 and 5 = 15 → Harry's magic wands : 15 units



Using the same model in Case 1 for Case 2,



4 units → $70 - 10 = 60$

15 units → 225

ANS: Harry collected 225 magic wands.

Alternative:

Case 1:

	<u>Harry</u>	<u>Ron</u>
Actual	15u	5u + 70
Change (if)	-5u	+5u
Result	10u	10u + 70

Case 2:

	<u>Harry</u>	<u>Ron</u>
Actual	15u	9u + 10
Change (if)	-3u	+3u
Result	12u	12u + 10

Observe a case of **unchanged total** number of magic wands, we have

$$10 \text{ units} + 10 \text{ units} + 70 \rightarrow 12 \text{ units} + 12 \text{ units} + 10$$

$$20 \text{ units} + 70 \rightarrow 24 \text{ units} + 10$$

$$4 \text{ units} \rightarrow 60$$

$$15 \text{ units} \rightarrow 225$$

ANS: Harry collected 225 magic wands.