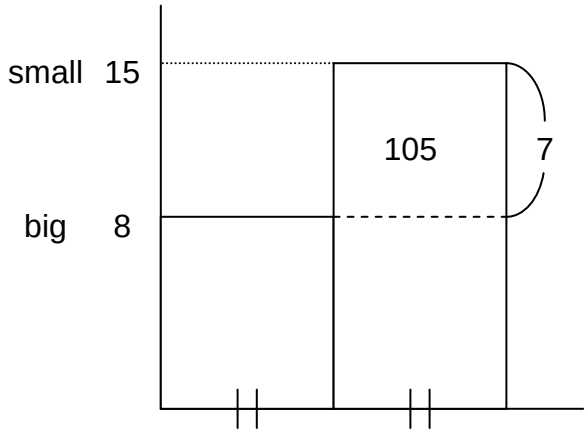
A Maths Question, PSLE 2009

Tom had 2 pieces of equal length string. He cut a string into strips of 90 cm and used each 90-cm string to tie 2 big balloons to it. He cut the other string into strips of 1.2 m and tied 5 small balloons to it. After tying, he found out that there were 105 more small balloons than the big balloons. How many balloons are there altogether?

Diagram



Writing

The string can be cut into strips of 90 cm and strips of 1.2 m also.
LCM of 90 cm and 120 cm $\rightarrow$ 360 cm
Assuming the length of string is 360 cm,
360 cm $\div$ 90 cm = 4 (strips)
4 $\times$ 2 = 8 (big balloons)
360 cm $\div$ 120 cm = 3 (strips)
3 $\times$ 5 = 15 (small balloons)
8 big balloons and 15 small balloons can be tied.
As 2 pieces of strings are in the same length, the number of 360-cm unit are the same to tie the big balloons and the small balloons.
Since the number of small balloons are 105 more,
15 – 8 = 7
105 $\div$ 7 = 15 $\rightarrow$ the number of 360-cm unit
15 $\times$ 8 = 120 $\rightarrow$ the number of big balloons
15 $\times$ 15 = 225 $\rightarrow$ the number of small balloons
120 + 225 = 345

Ans. 345