

Challenge 1

Can you work out the values of each shape?

$$\star + \star = 20$$

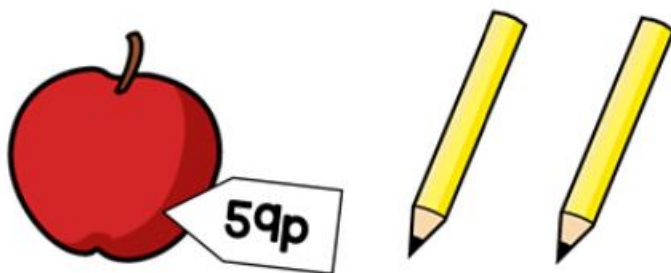
$$\heartsuit - \star = 7$$

$$\heartsuit - \heartsuit = \blacktriangle$$

Challenge 2

Tom has six 10p coins and three 5p coins. He buys an apple for 59p and two pencils.

He has no money left. How much does a pencil cost?



Challenge 3

Here are some digit cards.



Amir and Donna each make a three-digit number using all the cards.

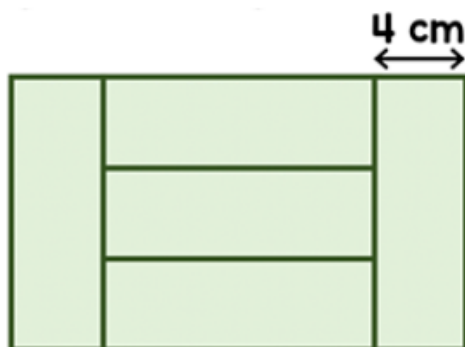
Amir notices that when he subtracts his number from Donna's number he gets an answer greater than 300 but less than 400.

What numbers did they make?

Challenge 4

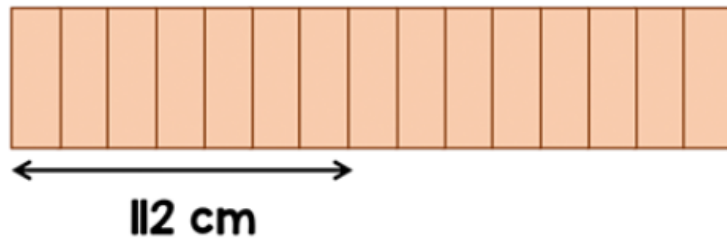
Five identical rectangles are put together to make a large rectangle.

The width of one rectangle is 4cm. Work out the perimeter of the large rectangle.



Challenge 5

15 identical blocks are lined up as shown.



The length of each individual block is twice the width.

If all 15 blocks are then laid end to end lengthways, what is the total length of the blocks altogether now?

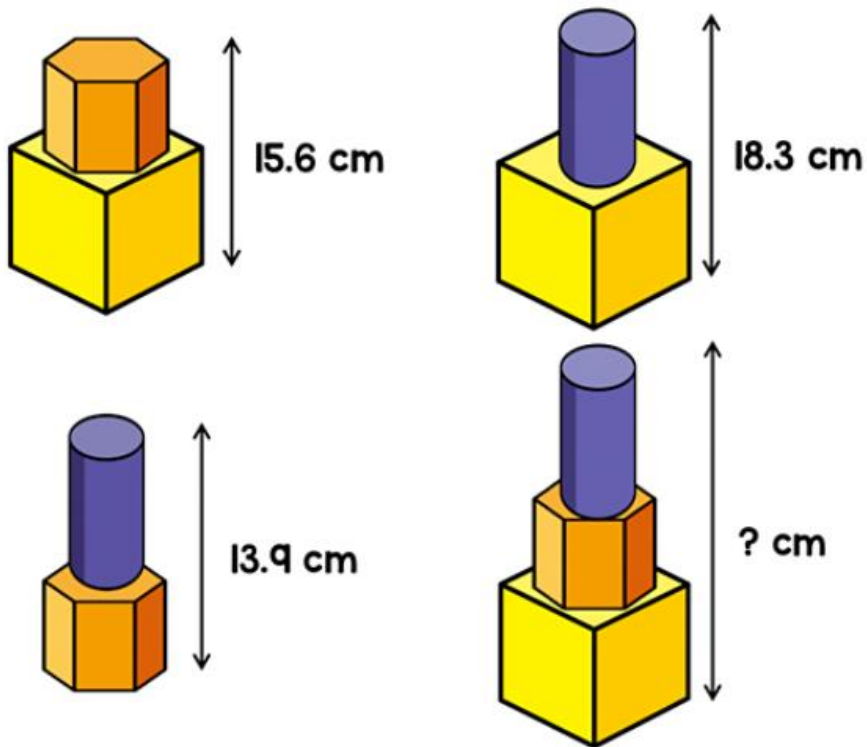


Challenge 6

Liam has these three shapes.



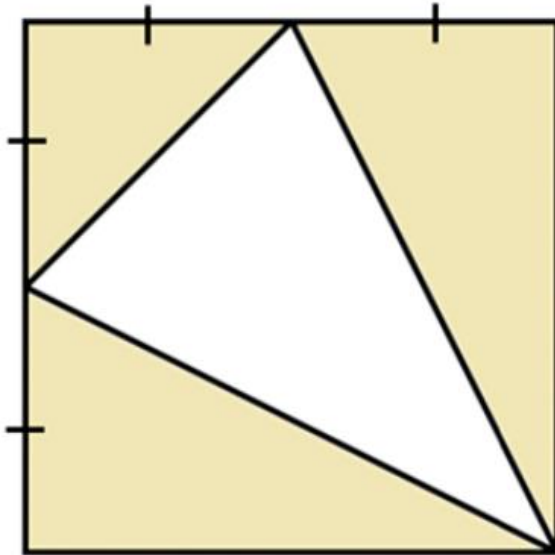
He uses them to make different towers. He measures the height of each tower he makes.



Liam stacks all three shapes to make one tall tower. How tall is the tower?

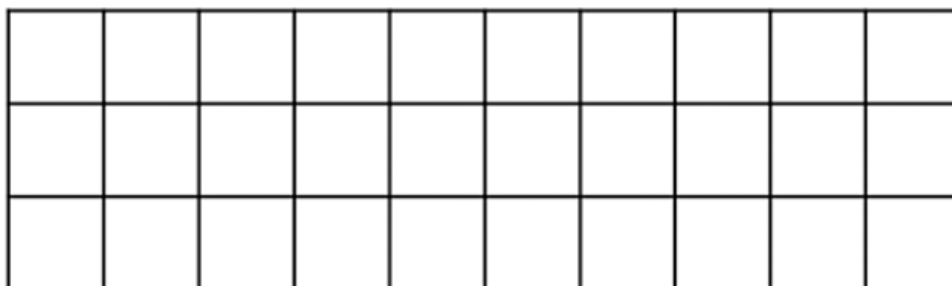
Challenge 7

The diagram shows a square. The square has been divided into 4 triangles. What fraction of the square is shaded?



Challenge 8

Lisa has this squared grid.



She shades some squares green so that the ratio of green squares to white squares is **1:2**.

She shades some more squares green so that the ratio of green squares to white squares is **4:1**.

How many more squares did Lisa need to shade?

Challenge 9

Mo is reading a book.

- On Monday he reads $\frac{2}{5}$ of the book.
- On Tuesday he reads $\frac{1}{2}$ of the remaining pages.
- On Wednesday he reads $\frac{5}{9}$ of the remaining pages.
- On Thursday he reads the rest of the book.

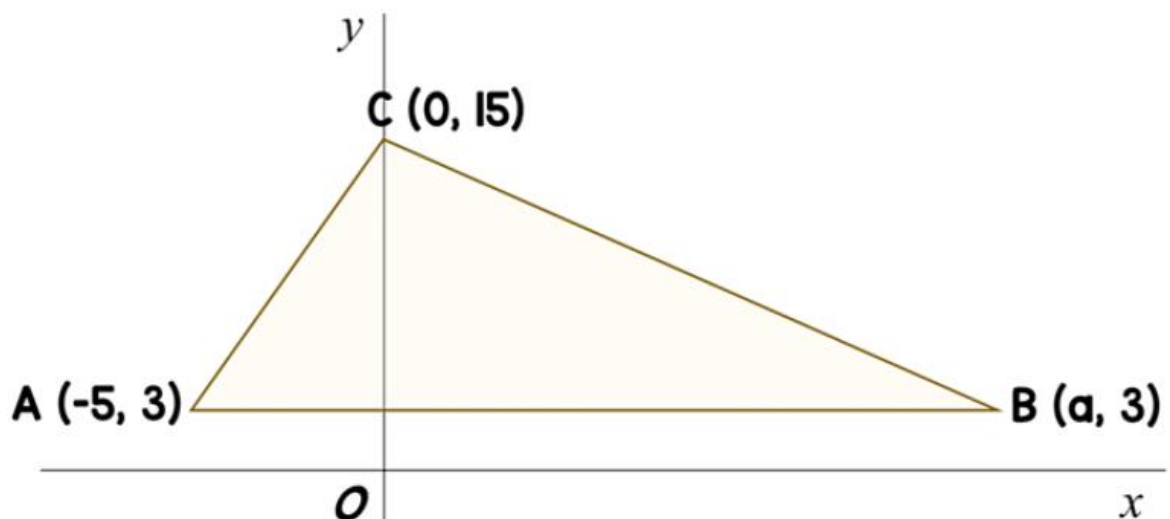
Mo read 68 more pages on Tuesday than Wednesday.

How many pages are there in the book?



Challenge 10

Triangle ABC is shown.



The area of ABC is 126 units².

Find the perimeter of triangle ABC.