Katie was given a marble on Tuesday.

Then she was given two marbles every day for a long time.

When did she get her 11th marble?

Solution

One way to do this is to put out 11 counters and have some cubes ready. We will use the cubes to count the days. Count out 1 for the first day and record a single cube. Then count out two and record by adding a second cube. Then count out another two counters and record a third block. We show the count in the diagram.

o	□	Tues
o oo	□□	Wed
o oo oo	□□□	Thurs
o oo oo oo	□□□□	Friday
o oo oo oo oo	□□□□□	Sat
o oo oo oo oo oo	□□□□□□	Sun

Here it can clearly be seen that it takes 6 days for Katie to get 11 marbles. This could perhaps be done more easily by:

1 + 2 + 2 + 2 + 2 + 2
Tu We Th Fr Sa Su

I own 5 cars and a very large garage.

If I can see 2 cars parked outside the garage, how many are inside?

How many different ways can I park my cars inside and outside the garage?

Solution

Because 2 + 3 = 5 , if there are 2 cars inside the garage there must be 3 outside.
6 possibilities: (0,5) (1,4) (2,3) (3,2) (4,1) (5, 0)

John draws three shapes and then a sixth one. You can see them in the picture.
Can he complete and continue the pattern so that the twelfth shape is a circle?

Can the twelfth shape be a square? Can it be a triangle?

Solution

Three possible answers are:

The original question can be answered by:
square, triangle, circle, square, triangle, circle, square, triangle, circle, square, triangle, circle.

For the square variation you could have:
square, triangle, circle, square, triangle, circle, circle, triangle, square, circle, triangle, square.

For the triangle variation you could have:
square, triangle, circle, square, triangle, circle, square, triangle, square, circle, square, triangle (square, circle).