

SPRINGDALE PRIMARY SCHOOL
Parents' Seminar / Mathematics Sharing
18 Feb 2017

Question 1

Mary, Nancy and Oprah are queuing up to go into the cinema.
How many different ways can they line up in the queue?

Solution 1

Mary Nancy Oprah
Mary Oprah Nancy
Nancy Mary Oprah
Nancy Oprah Mary
Oprah Mary Nancy
Oprah Nancy Mary

There are **6 different ways.**

Solution 2

Position 1	Position 2	Position 3
3	2	1

$3 \times 2 \times 1 = \underline{6}$

There are **6 different ways.**

Question 2

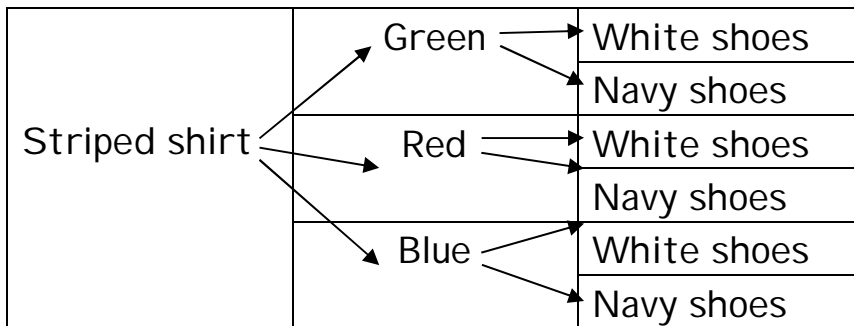
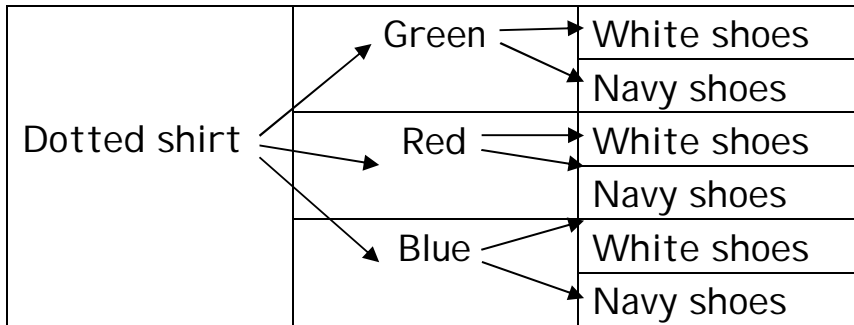
Sarah has a polka-dotted shirt and a striped shirt.

She has a pair of green shorts, a pair of red shorts and a blue skirt.

She can wear either white or navy shoes.

How many outfits can Sarah make?

Solution 1:



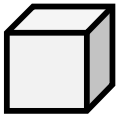
Solution 2:

$$2 \times 3 \times 2 = 12$$

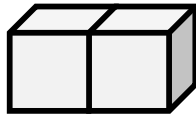
Sarah can make **12 outfits.**

Question 3

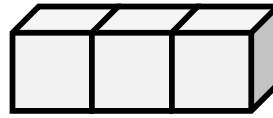
Lionel joined some cubes as shown. After joining them, he painted the faces of the cubes (including the base). How many faces would he have painted when 8 cubes are joined together in the same manner?



1 cube



2 cubes



3 cubes

Day	Patterns	No of faces
1	$1 \times 4 + 2$	6
2	$2 \times 4 + 2$	10
3	$3 \times 4 + 2$	14
...
8	$8 \times 4 + 2$	34

He would have painted **34 faces**.

Or

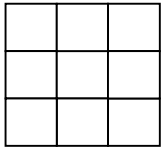
Day	Patterns	No of faces
1		6
2	$6 + 4$	10
3	$6 + 4 + 4$	14
...
8	$6 + 4 + 4 + 4 + 4 + 4 + 4 + 4$	34

Or

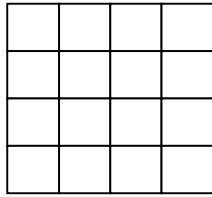
Day	Patterns	No of faces
1	$1 \times 6 - 0$	6
2	$2 \times 6 - 2$	10
3	$3 \times 6 - 4$	14
...
8	$8 \times 6 - 14$	34

Question 4

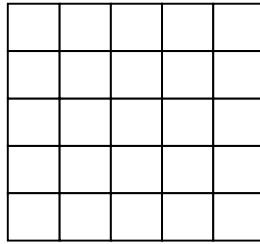
Study the pattern below.



Pattern 1



Pattern 2



Pattern 3

a) Complete the table:

Pattern number:	Total no. of squares	Pattern
1	9	3 x 3
2	16	4 x 4
3	25	5 x 5
4	36	6 x 6

b) How many squares will Pattern 15 have?

$$17 \times 17 = 289$$

Pattern 15 will have **265 squares**.

Question 5

There are 15 bicycles and tricycles in a park.

There are 35 wheels altogether.

How many bicycles and tricycles are there in the park?

Solution 1:

No of bicycle wheels	No of tricycle wheels	Total number of wheels
$8 \times 2 = 16$	$7 \times 3 = 21$	37
$9 \times 2 = 18$	$6 \times 3 = 18$	36
$10 \times 2 = 20$	$5 \times 3 = 15$	35

There are **10 bicycles** and **5 tricycles** in the park.

Solution 2:

Assuming all are tricycles,

$$15 \times 3 = 45$$

$$45 - 35 = 10$$

There are 10 wheels too many in my assumption.

For every exchange of 1 tricycle and 1 bicycle, there is a reduction of 1 wheel.

$$10 \div 1 = \underline{10} \text{ (bicycles)}$$

$$15 - 10 = \underline{5} \text{ (tricycles)}$$

There are **10 bicycles** and **5 tricycles** in the park.

Question 6

Carolyn is twice as old as Jackie. Ben is 5 years older than Jackie.
The sum of the ages of the 3 children is 41.
What are their ages?

Solution 1:

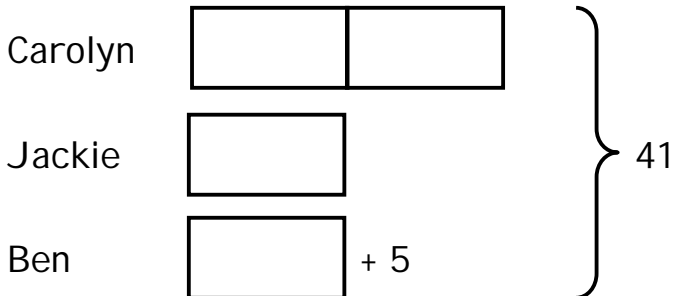
Carolyn	Jackie	Ben	Total
10	5	10	25
12	6	11	29
14	7	12	33
16	8	13	37
18	9	14	41

Carolyn is **18 years old**.

Jackie is **9 years old**.

Ben is **14 years old**.

Solution 2:



$$\begin{aligned} 4 \text{ units} &= 41 - 5 \\ &= 36 \end{aligned}$$

$$\begin{aligned} 1 \text{ unit} &= 36 \div 4 \\ &= \underline{\mathbf{9}} \end{aligned}$$

$$\begin{aligned} 2 \text{ units} &= 2 \times 9 \\ &= \underline{\mathbf{18}} \end{aligned}$$

$$9 + 5 = \underline{\mathbf{14}}$$

Carolyn is **18 years old**.

Jackie is **9 years old**.

Ben is **14 years old**.

Question 7

The same number of seats has been placed in each row of the hall.

Ms Tan's seat is in the 3rd row from the front, and the 8th row from the back.

Ms Lim's seat has 4 chairs to the left of it and 5 chairs to the right.

How many seats are there in the hall altogether?

Number of rows : $2 + 1 + 7 = 10$

Number of columns : $4 + 1 + 5 = 10$

$10 \times 10 = \underline{100}$

There are **100 seats** in the hall.

Question 8

Every time a bouncy ball bounces, it bounces to half the height from which it falls. If Cayden drops a ball from a building and it rises to a height of 24 metres, how high will it bounce on the 5th bounce?

Number of Bounces	Height of the Ball
0	48
1	$48 \div 2 = 24$
2	$24 \div 2 = 12$
3	$12 \div 2 = 6$
4	$6 \div 2 = 3$
5	$3 \div 2 = \mathbf{1.5}$

It bounces to **1.5 m** on the 5th bounce.

Question 9

Roy uses the four letters A, B, C and D to form a pattern. The first 16 letters are shown below. Which letter is in the 69th position?

A	B	C	D	D	C	B	A	A	B	C	D	D	C	B	A	?
1 st															16 th		69 th

1 set → ABCDDCBA (8 letters)

$69 \div 8 = 8 \text{ R } 5 \rightarrow \text{D}$

D is in the 69th position.

Question 10

There are 18 animals on the farm. Some are chickens and the rest are sheep. If there are 50 legs altogether, how many chickens and sheep are there?

Solution 1:

No of chicken legs	No of sheep legs	Total number of legs
$9 \times 2 = 18$	$9 \times 4 = 36$	54
$10 \times 2 = 20$	$8 \times 4 = 32$	52
$11 \times 2 = 22$	$7 \times 4 = 28$	50

There are **11 chickens** and **7 sheep** in the park.

Solution 2:

Assuming all are sheep,

$$18 \times 4 = 72$$

$$72 - 50 = 22$$

There are 22 legs too many in my assumption.

For every exchange of 1 chicken and 1 sheep, there is a reduction of 2 legs.

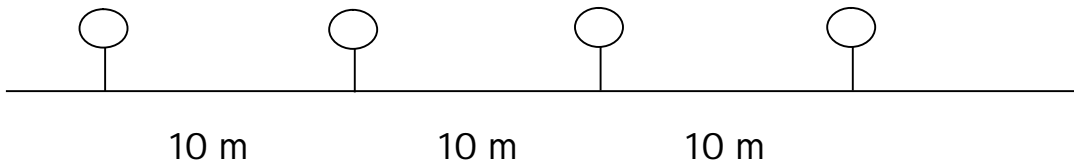
$$22 \div 2 = \mathbf{11} \text{ (chickens)}$$

$$18 - 11 = \mathbf{7} \text{ (sheep)}$$

There are **11 chickens** and **7 sheep** in the park.

Question 11

Trees are planted along a road as shown in the figure. They are planted 10 metres apart. There are 30 trees along the road. How long is the stretch of road?



No. of gaps between 2 trees : 1

No. of gaps between 3 trees : 2

No. of gaps between 4 trees : 3

No. of gaps between 30 trees : 29

Distance between 30 trees : $29 \times 10\text{m} = \underline{\underline{290 \text{ m}}}$

The stretch of road is **290 m.**

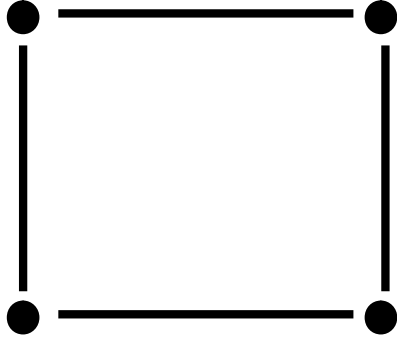
Question 12

Mr Lim has a garden in the shape of a square.

He erected 64 poles around the edge of the garden.

There is an equal number of poles on each side of the garden.

How many poles are there along each side of the garden?



$$64 - 4 = 60$$

$$60 \div 4 = 15$$

$$15 + 1 + 1 = \underline{17}$$

There are 17 poles along each side of the garden.