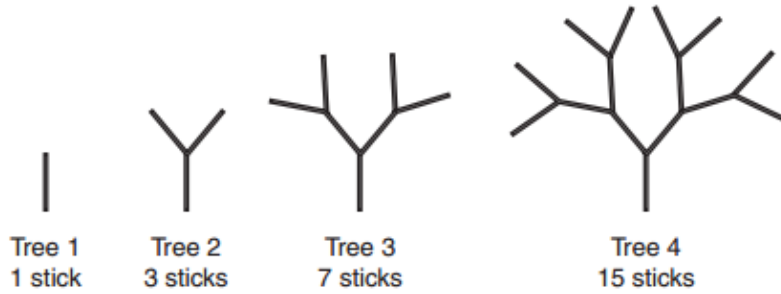


**Question 1**

Lucy made 4 tree designs using sticks.  
There is a pattern in the way the trees grow.



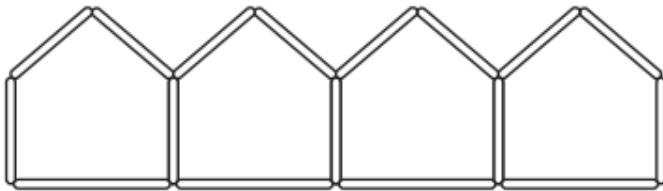
Lucy continues the pattern in the same way.

How many sticks will Tree 5 have?

- A 23                      B 31                      C 35                      D 45

**Question 2**

Sticks are used to make this pattern of pentagons.



In this pattern the rule for the number of sticks is

- A  $5 \times$  number of pentagons.  
 B  $4 \times$  number of pentagons.  
 C  $5 \times$  number of pentagons  $- 1$ .  
 D  $4 \times$  number of pentagons  $+ 1$ .

**Question 3**

3.25, 3.0, 2.75, 2.5, 2.25, ...

What is the rule to continue this decimal number pattern?

- A increase by 0.5  
 B increase by 0.25  
 C decrease by 0.5  
 D decrease by 0.25

Question 4

5, 11, 17, 23, 29, 35, .....

If this number pattern is continued for a long time, which of these numbers will be written down?

- A 595      B 599      C 601      D 603

Question 5

Frank selects one of the numbers in the box. He then adds it to 8.86.

2.67	1.61	1.32	2.29
------	------	------	------

The result is between 10.1 and 10.25.

Which number did Frank select?

- A 2.67      B 1.61      C 1.32      D 2.29

Question 6

If  $x$ ,  $y$  and  $z$  are positive numbers and  $x < y < z$ , which one of these statements is **always** true?

$$\frac{x}{y} < \frac{y}{z}$$

$$\frac{y}{z} < \frac{y}{x}$$

$$x + y < z$$

$$y < x - z$$

A

B

C

D

Question 7

Which one of the following expressions is equivalent to  $2(5m + 1)$ ?

$$7m + 1$$

$$10m + 1$$

$$10m + 2$$

$$12m$$

A

B

C

D

Question 8

Which one of the following expressions is equivalent to  $3(2n + 4)$ ?

$$6n + 4$$

$$5n + 12$$

$$2(3n + 6)$$

$$5n + 7$$

A

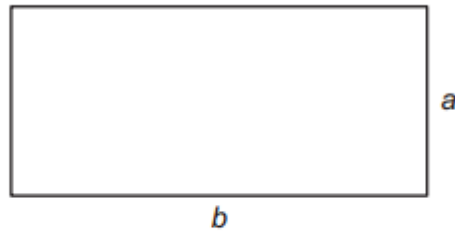
B

C

D

**Question 9**

A square corner measuring  $x$  cm by  $x$  cm is cut out of this rectangular sheet of paper.



Which of these statements is true for the piece of paper that remains?

- A Its area is  $ab - x^2$  and its perimeter is  $2a + 2b$ .
- B Its area is  $(ab - x)^2$  and its perimeter is  $2(a+b)$ .
- C Its area is  $ab - x^2$  and its perimeter is  $2(a + b - x)$ .
- D Its area is  $(ab - x)^2$  and its perimeter is  $2a + 2b - 4x$ .

**Question 10**

Which of these expressions is the same as  $10 - 3(3z - 2)$ ?

$21z - 2$

A

$21z - 14$

B

$4 - 9z$

C

$16 - 9z$

D

**Question 11**

An electrician calculates the price of a job using a service fee and an amount per hour.

This table shows some of the job prices.

Hours	2	4	5	6
Job price	\$160	\$252	\$298	\$344

How are the job prices calculated?

- A \$80 service fee + \$40 per hour
- B \$80 service fee + \$80 per hour
- C \$68 service fee + \$92 per hour
- D \$68 service fee + \$46 per hour

**Question 12**

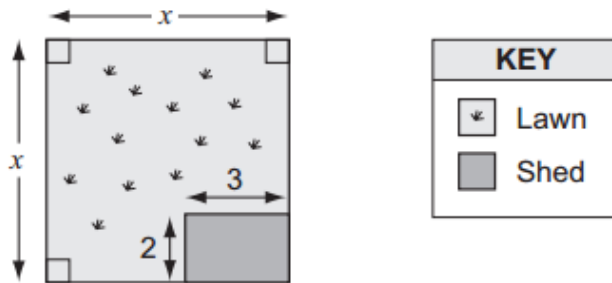
A rule for  $y$  in terms of  $x$  is  $y = 6 - 4x$ .

When  $x = 3.75$  the value of  $y$  is

- A -9
- B -1.75
- C 7.5
- D 9

### Question 13

Sue drew this plan of a square block of land.  
All measurements are given in metres.



The area of the lawn in square metres is

A  $x^2 - 6$

B  $x^2 + 6$

C  $2x^2 - 5$

D  $2x^2 - 6$

### Question 14

Claire thinks of a number,  $n$ .  
She multiplies the number by itself.  
She then halves that answer and subtracts 10.

Which expression shows what Claire did?

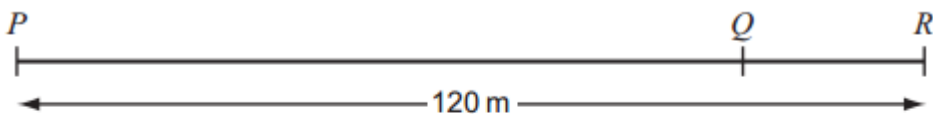
A  $\frac{2n - 10}{2}$

B  $\frac{2n}{2} - 10$

C  $\frac{n^2}{2} - 10$

D  $\frac{n^2 - 10}{2}$

### Question 15



The distance from  $P$  to  $Q$  is four times the distance from  $Q$  to  $R$ .  
The distance from  $P$  to  $R$  is 120 metres.

What is the distance from  $Q$  to  $R$ ?

A 15 meters

B 20 meters

C 24 meters

D 30 meters