

Year 9 NUMERACY

Non-calculator

Test 4

INSTRUCTIONS TO STUDENTS



Use a 2B pencil to show your answers.

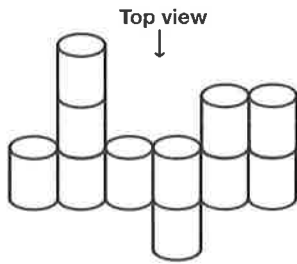


For the multiple-choice questions, show your answer by shading the matching bubble. If you make a mistake, erase the shading and shade the correct bubble.

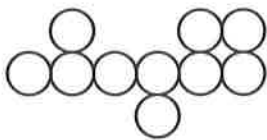


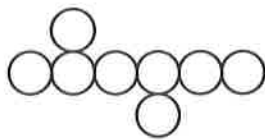
For the other questions, write your answer in the box provided. If you make a mistake, erase it and write the correct answer.

1 The object below is made from 11 cylinders.

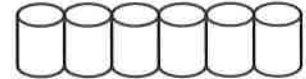


Which one of these shows the top view of the object?









2 There are 20 plants on display.
8 of the plants are marked 'water-tolerant'.
One plant is selected without looking.
What is the chance of selecting a plant that is marked 'water-tolerant'?

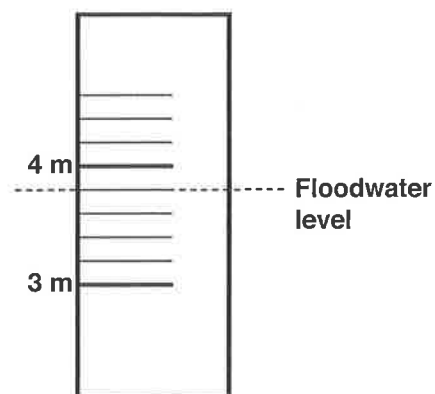
$$\frac{1}{5}$$

$$\frac{2}{5}$$

$$\frac{3}{5}$$

$$\frac{4}{5}$$

3 The depth of the floodwaters at midnight is shown.



What was the depth of the floodwaters?

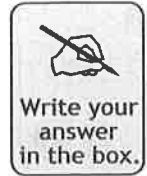
3.5 m

3.6 m

3.7 m

3.8 m

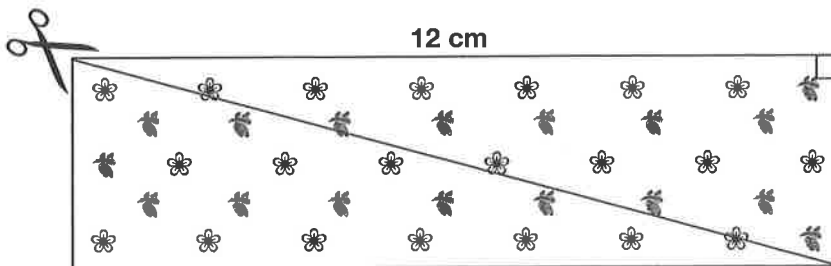
- 4 The price of bananas increased by 10% after the storms.
The actual increase was 24 cents.
What was the price of bananas before the storms?



\$

- 5 Ben's score was three more than twice Yanni's score.
Ben scored 15.
What was Yanni's score?

- 6 A rectangular piece of material, shown below, measures 12 cm long.
The material is cut in half to form 2 triangles.
The area of each triangle is 18 cm^2 .



not to scale

What is the width of each triangle?

1.5 cm

3 cm

6 cm

9 cm

- 7 Which of these is the best estimate for $29 \times 41 + 53 \times 46$?

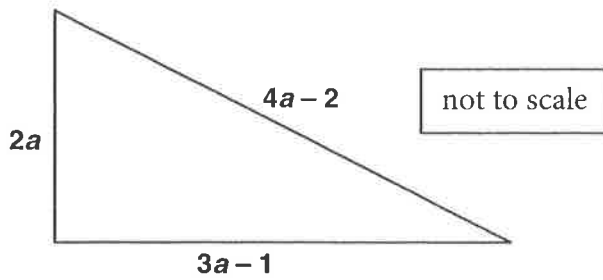
$30 \times 40 + 50 \times 40$

$30 \times 40 + 50 \times 50$

$20 \times 40 + 50 \times 50$

$30 \times 50 + 60 \times 50$

8



The perimeter of the rectangle is given by which one of the following?

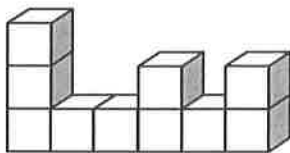
$a(3a - 1)$

$2a(3a - 1)(4a - 2)$

$a(4a - 2)$

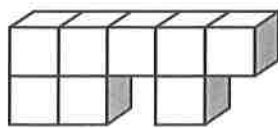
$9a - 3$

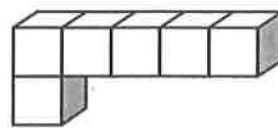
9 Ruth has stacked some small cubes as shown below.

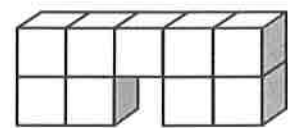


Which of the following can be added to form a solid rectangular shape?









10 There are 4 pink, 12 blue and 8 yellow highlighter pens in a box.

Without looking, Mairi takes one highlighter pen.

What is the chance that the highlight pen taken is **not** yellow?

$\frac{1}{6}$

$\frac{1}{3}$

$\frac{1}{2}$

$\frac{2}{3}$

- 11 Three of the four expressions below have the same value.
Which one has a different value?



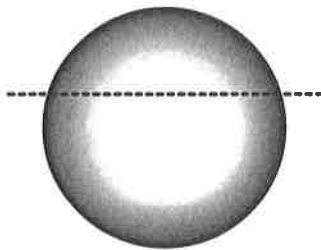
$$\sqrt{25}$$

$$1^2 + 2^2$$

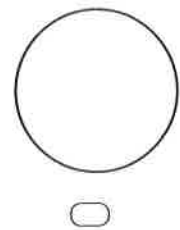
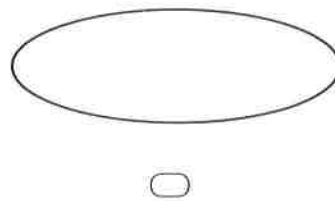
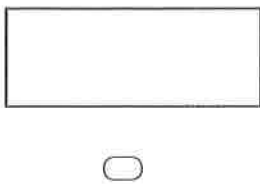
$$2^3 - 1^3$$

$$\frac{10}{2}$$

- 12 A sphere is sliced horizontally as shown.



What is the shape of the cross-section made by the slice?



- 13 $4h - 16t$ is equivalent to:

$$4(h - 4t)$$

$$4h(1 - 4t)$$

$$4h(h - 16t)$$

$$-12ht$$

14 Dean asks 20 people what one sport they like best.

8 like football and 7 like tennis.

The other people do not like any sport.

What fraction of the 20 people do not like any sport?



$\frac{1}{5}$

$\frac{1}{4}$

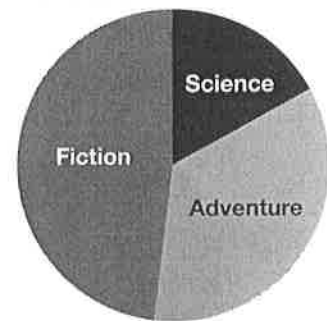
$\frac{1}{3}$

$\frac{1}{2}$

15 The pie chart shows the number of books of a particular type read by a group of Year 7 students.

100 students are selected at random from the group.

Number of books read



Which table is **most likely** to show the results?

Type	Number
Science	33
Adventure	33
Fiction	39

Type	Number
Science	35
Adventure	17
Fiction	48

Type	Number
Science	48
Adventure	35
Fiction	17

Type	Number
Science	17
Adventure	35
Fiction	48

16 Which two of the expressions in the boxes can be multiplied to equal 72?

2^3

4^2

6^3

3^3

3^2

2^3 and 3^2

4^2 and 3^3

6^3 and 2^3

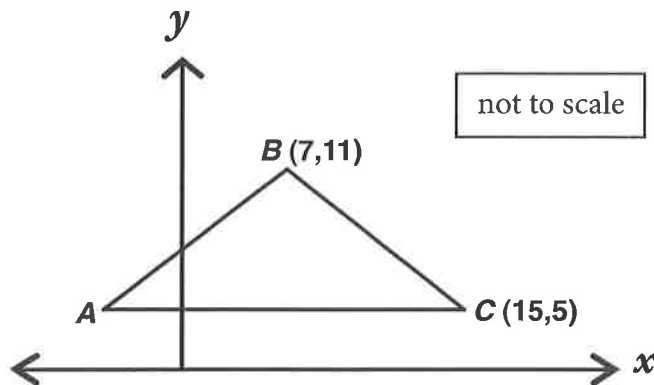
3^3 and 2^3

17 25% of the 20 people swimming in a pool were wearing sunglasses.
20% of those wearing sunglasses were boys.
How many boys were wearing sunglasses?



- 1 5 10 15

18 In triangle ABC , $AB = AC$.
 AC is parallel to the x axis.
What are the coordinates of A ?



(,)

19 Cameron recorded his scores on 5 games of ten-pin bowling.
His scores were: 60 120 140 140 165
He calculated the mean, median and range.
What will **not** change if he removes his lowest score?



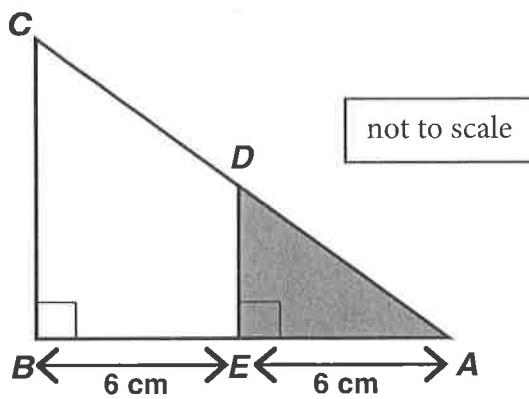
- the mean only
 the mean and median
 the mode only
 the mean, median and mode

- 20 Two numbers added together equal 12.
The two numbers multiplied together equal -45 .
What are the two numbers?



and

- 21 The area of the shaded triangle ADE is 12 cm^2 .



What is the area of triangle ABC ?

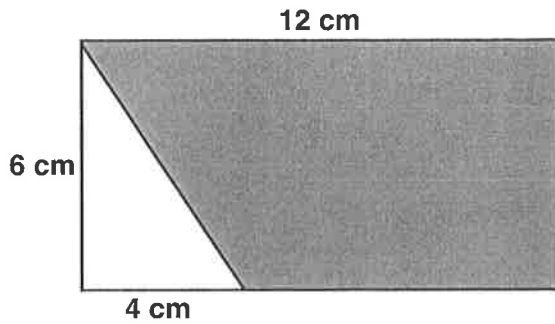
cm^2

- 22 The value of $(2p - t)^2$ when $p = -2$ and $t = 1$ is:



- -25
 -9
 9
 25

23



not to scale



What fraction of the rectangle is shaded?

24 The time it took Ari to complete a hike was:

- twice as long as Barney's time
- one and a half times as long as Charlie's time
- half as long as Digby's time.



Which one of the following is true?

- Digby took 0.25 times as long as Barney.
- Digby and Barney took the same time.
- Digby took 3 times as long as Barney.
- Digby took 4 times as long as Barney.

25 Marcus travelled at 30 km per hour for the **first 2 hours** of his journey.

He travelled 100 km in the **next 2 hours**.

Which calculation gives his average speed, in km per hour, for the 4 hours?

- $(2 \times 30 + 100) \div 4$
- $2 \times 30 + 100 \div 4$
- $2 \times (30 + 100) \div 4$
- $30 + 100 \div 4$

- 26 Which one of the following points does **not** lie on the line with rule $x - 2y = 5$?



(-5,0)

(-1,-3)

(1,-2)

(3,-1)

- 27 Peta took 40 minutes to complete a new exercise routine.

After a week of practice, she found that her time had decreased by 5%.

How many minutes does she now need to complete the routine?

2

20

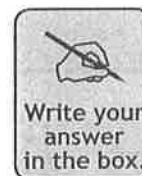
38

42

- 28 A trick coin is weighted so that the probability of getting a head is 0.6.

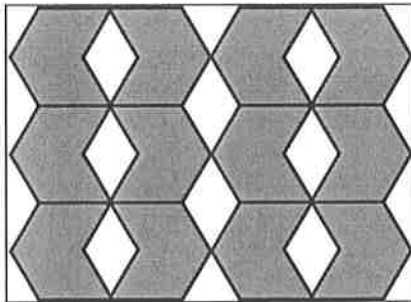
The coin is tossed twice.

What is the chance of getting a **tail** on both tosses?



29 A rectangular mat is to be totally covered in tiles.

There are only two types of tiles available:  and 



Sascha has placed the shaded tiles on the mat.

How many triangular tiles does she need to finish the pattern?



30 $4(2x + 3) + x + 2$

Which of the following is equivalent to the expression above?

- $9x + 14$
- $9x + 5$
- $12x + 20$
- $8x + 12$



31 The fractions $\frac{2}{3}$, $\frac{1}{2}$ and $\frac{5}{6}$ are reordered from smallest to largest.

What is the middle value?

$\frac{1}{2}$

$\frac{7}{12}$

$\frac{3}{4}$

$\frac{2}{3}$