

# NUMERACY NON-CALCULATOR



YEAR  
**9**  
2015

## SESSION 2

**40 min**

Time available for students to  
complete test: 40 minutes

Use 2B or HB  
pencil **only**



# YEAR 9 NUMERACY (NON-CALCULATOR)



1

This table shows a pattern. The top and bottom numbers are connected by a rule.

<b>Top number</b>	1	2	3	4	.....	?
<b>Bottom number</b>	3	6	9	12	.....	27

What is the top number when the bottom number is 27?

5

9

15

19

2

Luca had a \$10 voucher to spend on games for his smartphone.

He bought three games at \$1.99 each.

Which expression shows how much he has left to spend?

$\$10 - \$1.99$

$\$10 - (3 \times \$1.99)$

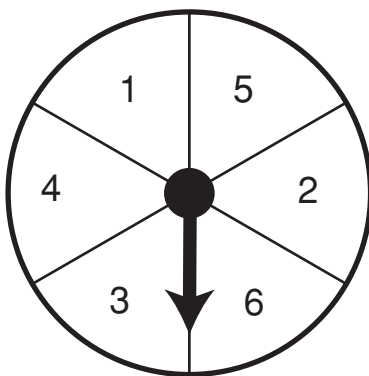
$\$10 - \$1.99 + \$1.99 + \$1.99$

$3 \times (\$10 - \$1.99)$

3

This spinner is spun twice.

The two numbers that the arrow lands on are added.



Which of these totals is most likely to occur?

7

10

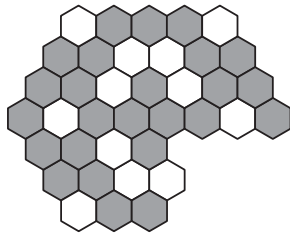
11

12



4

Some tiles are missing from this pattern of tiles.



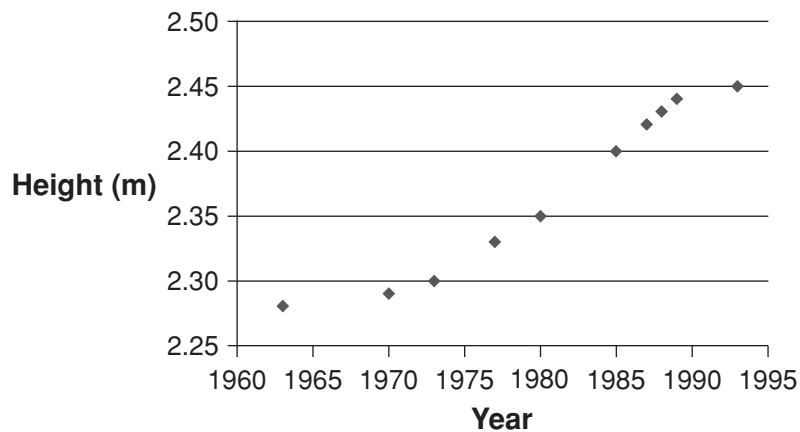
When complete the pattern has two lines of symmetry.

Which of these could be the missing part of the pattern?



5

This graph shows the history of the men's high jump world record.



By about how many centimetres did the world record increase between 1970 and 1985?

9



11



15



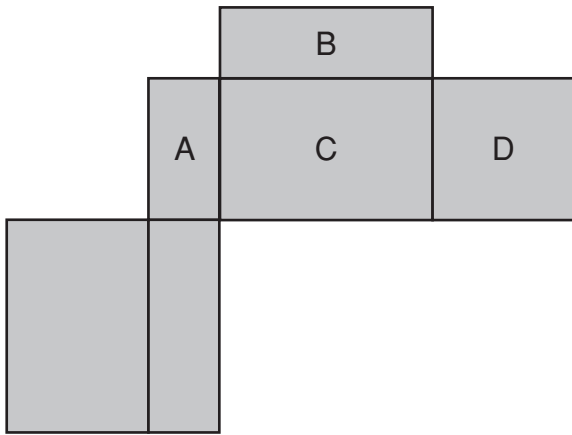
17





6

Brad was trying to draw a net of a rectangular prism.



He drew one face of the prism incorrectly.

Which face did he draw incorrectly?

A

B

C

D

7

$$5 \times 2^3 = ?$$

30

40

115

1000

8

$$\text{😊} = 6$$

$$\text{😊} \times \text{★} = \text{★} + \text{★} + \text{★} + \text{😊}$$

What is the value of ★ ?

0

1

2

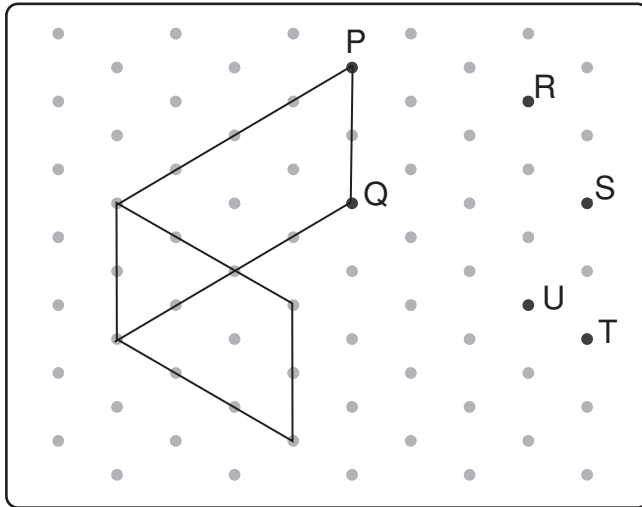
3

4



9

Ann was drawing a rectangular prism on an isometric grid.



Which pair of points should she join with a line?

P and R

P and S

Q and U

Q and T

10



What is the best estimate for the capacity of this mug?

0.30 litres

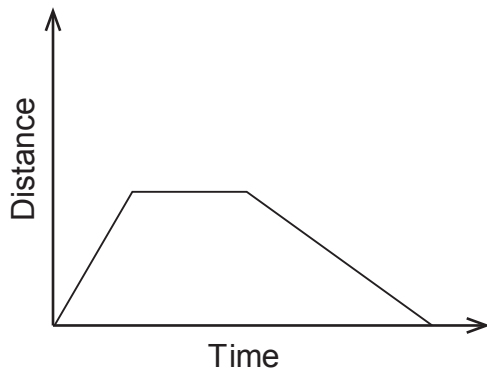
3.0 litres

90 millilitres

900 millilitres



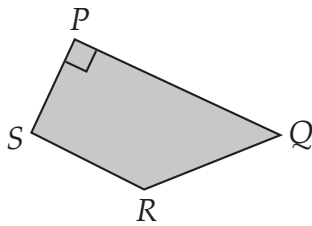
11



Which of the following stories best fits the graph above?

- Melanie drove north-east, did some shopping and drove back home.
- Melanie walked uphill, had a rest and ran downhill.
- Melanie ran to the park, rested for a while and then walked home.
- Melanie walked to the beach, had a swim and then ran back home.

12



Which of these properties makes  $PQRS$  a trapezium?

- Line  $PS$  is perpendicular to line  $PQ$ .
- Line  $QR$  is parallel to line  $SR$ .
- Line  $PR$  is perpendicular to line  $SQ$ .
- Line  $PQ$  is parallel to line  $SR$ .

13

Which expression is equal to  $5x - 2 + 3x + 6$ ?

$12x$

$8x + 4$

$8x - 8$

$3x + 9$



14

Ben and Lee were playing a game.

They both started with zero points.

Ben's final score was 240 points. Lee's final score was  $-60$ .

How many more points did Ben have than Lee?

$-300$

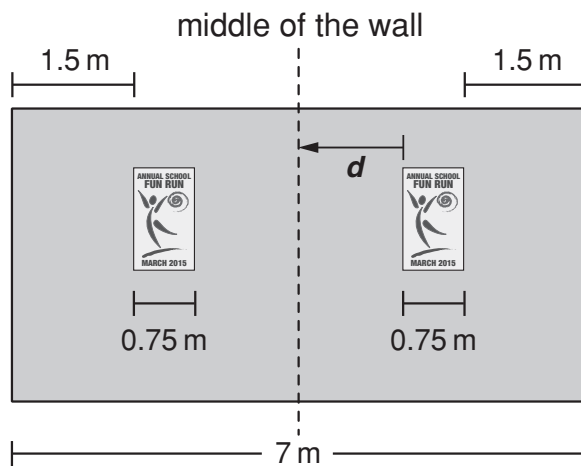
$-180$

180

300

15

Sanjeet put two identical posters on his wall as shown.



What is the distance  $d$  from the edge of each poster to the middle of the wall?

1.25 m

1.5 m

2.25 m

2 m

4.75 m

16

Stuart made a phone call that lasted 59 minutes.

The cost per minute for the phone call was \$0.89.

Stuart estimated that the total cost of the phone call was about \$54.

Stuart's estimate was

less than the actual cost.

equal to the actual cost.

more than the actual cost.



17

Which of these is the closest to 0?

1.001

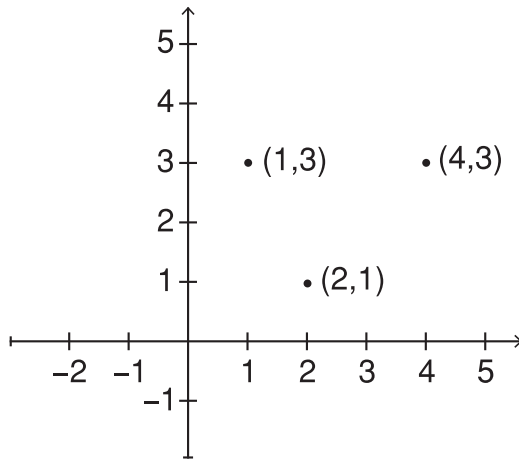
0.01

- 0.1

- 0.001

18

Rani draws and labels 3 points, as shown below.



She wants to add another point so that all 4 points can be joined to make a parallelogram.

Which of these is a possible coordinate for the 4th point?

(-1, 1)

(1, 4)

(1, -1)

(4, 1)

19

Nick works in a factory packing chocolates into boxes.

He packs one box at a time.

Each box contains 5 milk chocolates, 3 dark chocolates and 2 white chocolates.

Every hour Nick packs a total of 300 chocolates.

How many dark chocolates does he pack every hour?





20

A standard six-sided dice is rolled once.

What is the probability that the number on the top face is a factor of 6?

$$\frac{1}{6}$$

$$\frac{1}{3}$$

$$\frac{1}{2}$$

$$\frac{2}{3}$$

21

Simplify:  $\frac{2^3 \times 5^2 \times 3^4}{3 \times 3^3 \times 5 \times 2^2}$

10

$$\frac{4}{3}$$

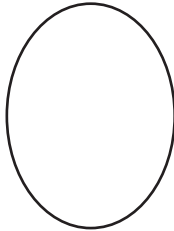
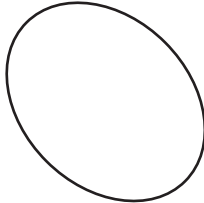
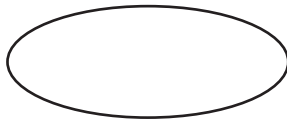
1

$$\frac{1}{3}$$

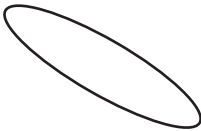


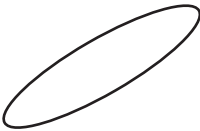
22

Sandra is using a computer program to draw shapes.

The picture shows three commands and the resulting shapes.

ellipse (3, 4, 0)	ellipse (3, 4, 45)	ellipse (2, 5, 90)
		

Which shape would be drawn by this command: ellipse (1, 4, 60)?

			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



23

It takes 5 hours for 4 people to deliver leaflets to 1000 homes.

At the same rate, how many hours should it take for 5 people to deliver leaflets to 1500 homes?

hours

24

Tilly made a number pattern using this rule:

$$\text{next number} = \text{previous number} \times \blacksquare - \triangle$$

(  $\blacksquare$  and  $\triangle$  are whole numbers )

Her number pattern is:

2, 1, -1, -5, -13, ...

What is the next number in Tilly's pattern?

-29

-26

-25

-21

25

In a group of Year 9 students, the ratio of boys to girls is 9:7.

There are 4 more boys than girls in this group.

How many students are in this group altogether?

16

18

20

32



26

$$\frac{x}{2} = \frac{3}{11}$$

What is the value of  $x$ ?

$$\frac{3}{22}$$

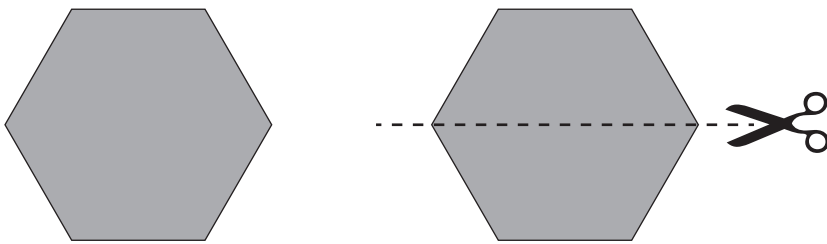
$$\frac{6}{22}$$

$$\frac{5}{11}$$

$$\frac{6}{11}$$

27

A regular hexagon has a perimeter of 12 cm. It is then cut in half.



What is the perimeter of each half of the hexagon?

5 cm

6 cm

8 cm

9 cm

10 cm

28

Lina drew a line with equation  $y = 3 - x$  on a grid.

She then drew another line on the same grid with this equation  $y = x - 1$ .

What are the coordinates of the intersection point of these two lines?

$(-1, 2)$

$(1, 2)$

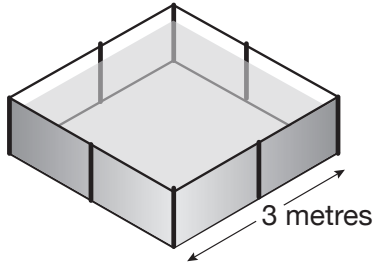
$(2, -1)$

$(2, 1)$



29

A square pool for small children has sides which are 3 metres long.  
One cubic metre can hold 1000 litres of water.



How many litres of water will fill the pool to a depth of 50 centimetres?

litres

30

The area of a rectangle is  $60 \text{ mm}^2$ .  
The side lengths are doubled to make a new rectangle.  
What is the area of the new rectangle?

$30 \text{ mm}^2$

$120 \text{ mm}^2$

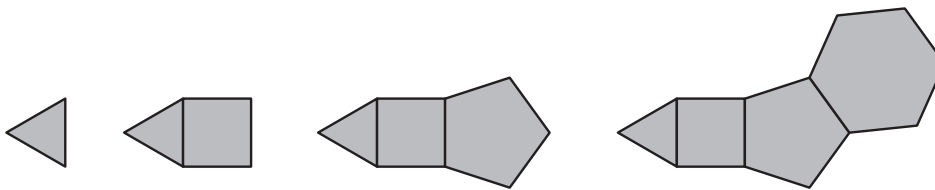
$240 \text{ mm}^2$

$360 \text{ mm}^2$



31

Holly created a shape using various regular polygons.  
She began by using a triangle with a side length of 1 cm.  
She then added regular polygons, each with one more side than the previous one.



She continued this way until a 10-sided polygon is added to her shape.  
What will the perimeter of her whole shape be?

cm



32

Kumi is  $\frac{3}{4}$  the height of Zac.

Sue is  $\frac{2}{3}$  the height of Zac.

Kumi is 15 centimetres taller than Sue.

How tall is Zac in centimetres?

centimetres

**STOP – END OF TEST**