

NATIONAL ASSESSMENT PROGRAM
LITERACY AND NUMERACY

NUMERACY

NON-CALCULATOR



YEAR

9
2011

SESSION 2

0:40

Time available for students to
complete test: 40 minutes

Use 2B or HB
pencil only



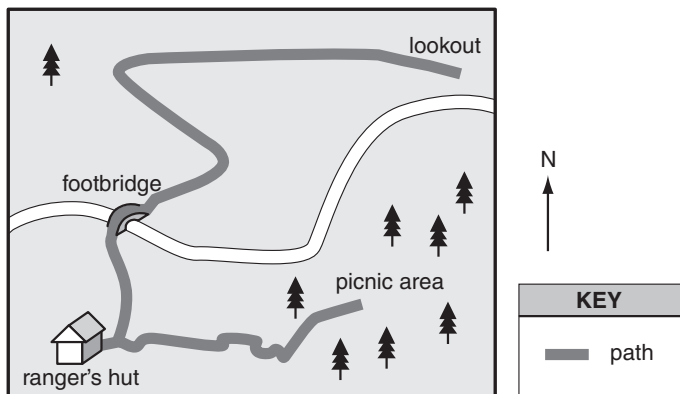
YEAR 9 NUMERACY (NON-CALCULATOR)



1

Lucy walked along the path from the ranger's hut to the lookout.

Shade one bubble.



Which set of directions best describes her path to the lookout?

- ☐ north, north-east, north-west then west
- ☐ north, north-west, north-east then west
- ☐ north, north-east, north-west then east
- ☐ north, north-west, north-east then east

2

Which of these shows the **smallest** change in temperature?

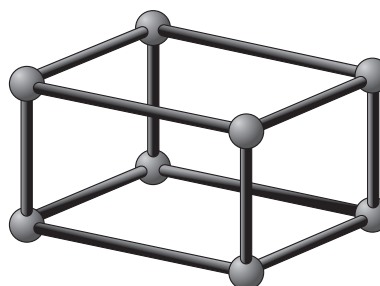
- ☐ from -10°C to -5°C
- ☐ from -4°C to 0°C
- ☐ from -3°C to 3°C
- ☐ from 4°C to 6°C

3

Ruth made this model using 8 foam balls for the vertices and 12 sticks for the edges.

How many foam balls and sticks would Ruth need to make a **square-based pyramid**?

- ☐ 5 foam balls and 8 sticks
- ☐ 5 foam balls and 6 sticks
- ☐ 4 foam balls and 6 sticks
- ☐ 6 foam balls and 9 sticks



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4

The table shows the times of 3 of the first 4 swimmers in a race.

Shade one bubble.

1st place	25.38 seconds
2nd place	25.83 seconds
3rd place	?
4th place	26.29 seconds

The time of the swimmer in 3rd place could be

- ☐ 25.78 seconds.
- ☐ 25.91 seconds.
- ☐ 26.31 seconds.
- ☐ 26.92 seconds.

5

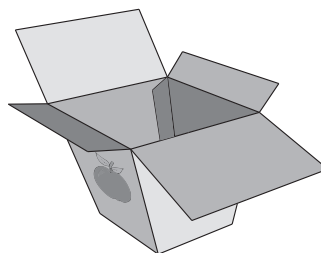
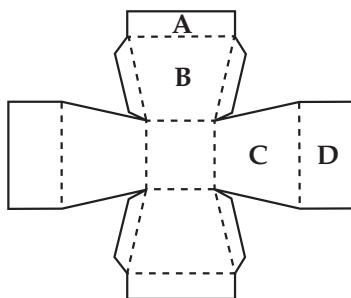
Tim had \$32 to spend while on holiday.
He spent exactly the same amount each day.
At the end of the holiday he had no money left.

Which of these could be the amount he spent each day?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| \$6 | \$5 | \$4 | \$3 |
| ☐ | ☐ | ☐ | ☐ |

6

This drawing shows a flat sheet of cardboard that can be folded to make a box.
The box has a picture of an apple on one side only, as shown.



Which part of the flat sheet could have the picture on it?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| Part A | Part B | Part C | Part D |
| ☐ | ☐ | ☐ | ☐ |

YEAR 9 NUMERACY (NON-CALCULATOR)



7

When it is 11 am in Perth, it is 3 pm in Auckland on the same day.
At 9 pm in Perth, Sophie phoned a friend in Auckland.

Shade one bubble.

What was the time in Auckland when Sophie phoned?

1 am

☐

5 am

☐

1 pm

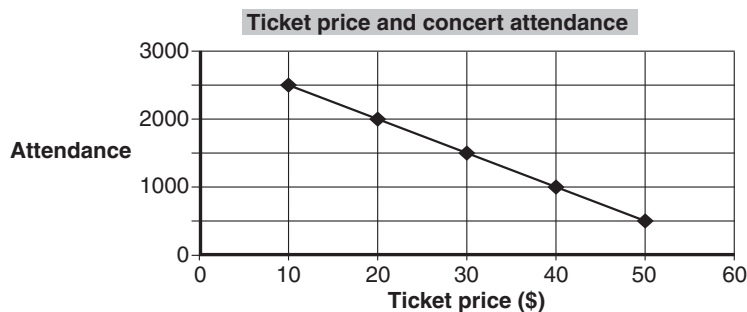
☐

5 pm

☐

8

Jack drew this graph to show how attendance at concerts is related to ticket price.



Which statement best describes the graph?

- ☐ As the ticket price goes up, attendance goes down.
- ☐ As the ticket price goes up, attendance goes up.
- ☐ As the ticket price goes down, attendance goes down.
- ☐ As the ticket price goes down, attendance stays the same.

9

This table is a training schedule for a walking group.

Week number	Week 1	Week 2	Week 3	Week 4
Daily distance	5 km	6 km	8 km	?

The daily distance increases from week to week. It follows the rule:

Double the previous week's daily distance and subtract 4 km.

What is the daily distance for Week 4?

9 km

☐

10 km

☐

12 km

☐

20 km

☐

YEAR 9 NUMERACY (NON-CALCULATOR)



10

Bruce is cooking dinner.
The table shows the cooking times for his dinner.

Shade one bubble.

	Cooking time
Chicken	1 hour 40 minutes
Potatoes	20 minutes
Peas	10 minutes

Bruce starts cooking the chicken at 5:10 pm.
He wants everything to finish cooking at the same time.

At what time should Bruce start cooking the peas?

6:20 pm

☐

6:30 pm

☐

6:40 pm

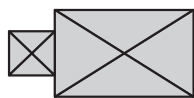
☐

6:50 pm

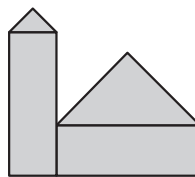
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11

The top view and front view of a building are shown.

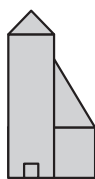
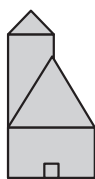
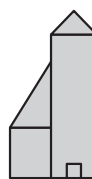


Top view



Front view

Which could be the side view of this building?


☐

☐

☐

☐

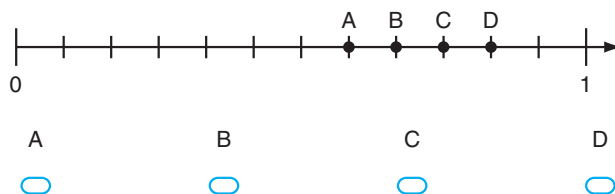
YEAR 9 NUMERACY (NON-CALCULATOR)



12

Which position is closest to $\frac{2}{3}$ on this number line?

Shade one bubble.



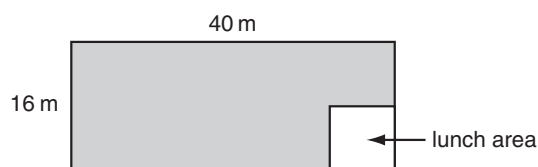
13

This diagram shows a rectangular school yard.

The shaded area is the playground.

The lunch area is a square of side length 8 m.

Which of these expressions gives the area of the playground?



$(40 \times 16) - (8 \times 8)$

$(32 \times 8) + (8 \times 8)$

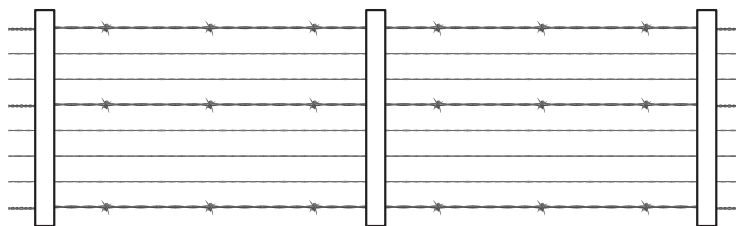
$(40 + 16) - (8 + 8)$

$(40 \times 16) + (8 \times 8)$

14

A section of an 8-strand wire fence is shown.

The fence has 3 barbed wire strands and 5 plain wire strands.



Barbed wire costs $\$b$ per metre. Plain wire costs $\$p$ per metre.

Which of these expressions gives the total cost of the wire needed for a fence of length L metres?

$8bpL$

$15bpL$

$8(b + p)L$

$(3b + 5p)L$

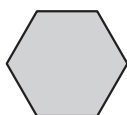
YEAR 9 NUMERACY (NON-CALCULATOR)



15

This regular hexagon has been made by putting together 3 identical smaller shapes.

Shade one bubble.



Which of these could be that smaller shape?



☐



☐



☐



☐

16

Jane buys a 1.25 L bottle of drink and a 375 mL can of drink.

How much drink does she buy?

376.25 mL

☐

500 mL

☐

1.525 L

☐

1.625 L

☐

17

Sally has seen four movies.

The ticket prices were \$13, \$8, \$10 and \$10.

The next movie she plans to see is in 3D and the ticket price is \$34.

Which of these will **not** change after Sally sees the next movie?

- ☐ the median of her ticket prices
- ☐ the mean of her ticket prices
- ☐ the range of her ticket prices
- ☐ the total cost of her tickets

18

Jade buys a 500 gram bag of beads at a market.

Each bead has a mass of 0.48 grams.

Which of these is the best estimate for the number of beads in the 500 gram bag?

100

☐

250

☐

1000

☐

2500

☐

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19

Elli was playing a video game.
In the game she had to collect objects that are worth points.
The pictures show how many points she scored in three games.

Write your answer
in the box.

Game 1	Game 2	Game 3
  	  	  
170 points	150 points	120 points

In Game 4 she collected these three objects:   

How many points did she score in Game 4?

20

Nadia went on a bus trip in Queensland.
Her bus left at 8:45 am. It arrived at 2:35 pm on the same day.

Shade one
bubble.

How long did Nadia's bus trip take?

- ☐ 5 hours 50 minutes
- ☐ 6 hours 10 minutes
- ☐ 6 hours 50 minutes
- ☐ 7 hours 50 minutes

21

80 students were asked if they had an MP3 player, a DVD player or both.

	MP3 player	No MP3 player
DVD player	36	12
No DVD player	6	26

How many students had a DVD player?

- ☐ 12
- ☐ 36
- ☐ 42
- ☐ 48

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22

Which one of the following triangles is **impossible** to draw?

Shade one bubble.

- ☐ an isosceles triangle with one right angle
- ☐ an equilateral triangle with one right angle
- ☐ a scalene triangle with one obtuse angle
- ☐ an isosceles triangle with three acute angles

23

Sam buys 16 tickets to a concert.
The tickets cost \$27 each.

Which of these could Sam use to calculate the total cost?

- ☐ $(27 \times 10) + 6$
- ☐ $(27 \times 10) \times 6$
- ☐ $(20 \times 10) + (7 \times 6)$
- ☐ $(27 \times 10) + (27 \times 6)$

24

In a class there are 24 students.
The ratio of students born in Australia to those born overseas is 5:3.

How many students in the class were born overseas?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 3 | 6 | 8 | 9 |
| ☐ | ☐ | ☐ | ☐ |

25

A number of students were asked this question:

“How many cousins do you have?”

Write your answer in the box.

The lowest answer given was 6.
The highest answer given was 20.
The total of all the answers given was 50.

What is the **smallest** number of students who could have been asked?

students

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26

In February 2010, the population of the world was approximately 6 800 000 000 people.

Another way of writing this number is

$$6.8 \times 10^8$$

☐

$$6.8 \times 10^9$$

☐

$$68 \times 10^9$$

☐

$$68 \times 10^{10}$$

☐

Shade one bubble.



27

Three friends were making cupcakes for a party.

Josh made 10 more cakes than Alice.

Alice made 8 more cakes than Tom.

In total they made 62 cakes.

How many cakes did **Tom** make?

Write your answer in the box.

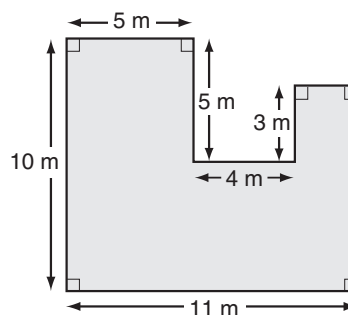


28

The diagram shows some measurements of a courtyard.

What is the area of the courtyard in square metres?

square metres

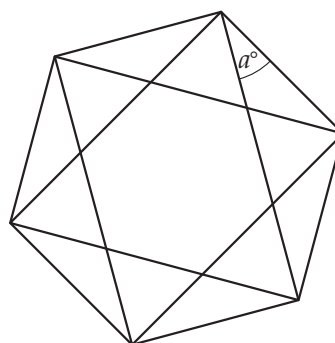


29

This design is drawn inside a regular hexagon.

What is the size of the angle marked a ?

degrees



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30

When 1 mm of rain falls on 1 m^2 of the surface of a pond, 1 litre of water is collected.

Write your answer in the box.



What surface area of the pond is needed to collect 10000 litres from a rainfall of 20 mm?

m^2

31

A jockey rode a horse for 1200 metres.

The time for each 400 metres is shown in the table.

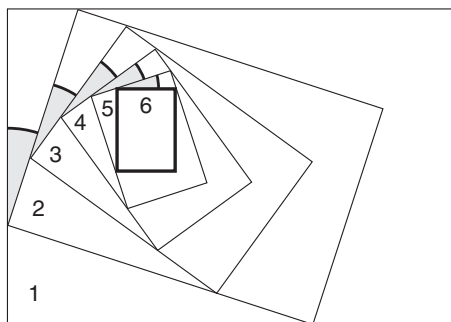
Distance	Time
First 400 metres	29 seconds
Next 400 metres	27 seconds
Last 400 metres	24 seconds

What was the average speed for the 1200 metre ride, in metres per second?

metres per second

32

Ben put six rectangular sheets of paper on top of each other to make this spiral design.



All of the shaded angles are equal. Sheet 6 is at right angles to sheet 1.

What is the size of a shaded angle? degrees

STOP – END OF TEST