

MCEECDYA

Ministerial Council for Education,
Early Childhood Development and Youth Affairs

NATIONAL ASSESSMENT PROGRAM
LITERACY AND NUMERACY

NUMERACY

NON-CALCULATOR



YEAR

9
2010

SESSION 2

0:40

Time available for students to
complete test: 40 minutes

Use 2B or HB
pencil **only**

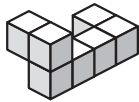


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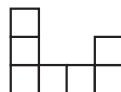
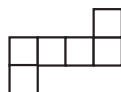
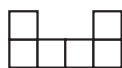
YEAR 9 NUMERACY (NON-CALCULATOR)



- 1 Seven cubes are joined to form the following object.



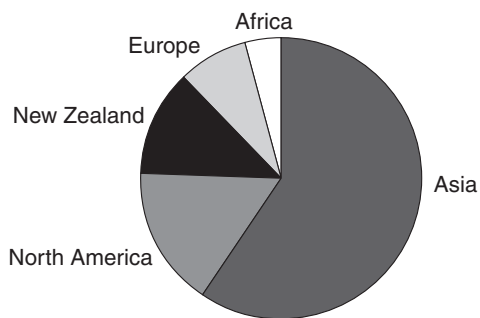
What will the shape look like from above?



Shade one bubble.



- 2 The diagram shows the proportion of flights to different international regions for an airline.



One region makes up about 60% of the airline's flights.

Which region is it?

Asia



Europe



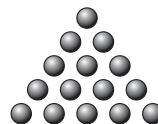
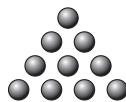
North America



New Zealand



- 3 The first five triangular numbers are 1, 3, 6, 10 and 15.



What is the sixth triangular number?

15



19



21



23



YEAR 9 NUMERACY (NON-CALCULATOR)



4

Tanya recorded temperatures on a mountain over four days.

Shade one bubble.



Which list gives four temperatures arranged in order from lowest to highest?

- ☐ 0°C, -3°C, 4°C, -5°C
- ☐ -3°C, -5°C, 0°C, 4°C
- ☐ -5°C, 4°C, -3°C, 0°C
- ☐ -5°C, -3°C, 0°C, 4°C

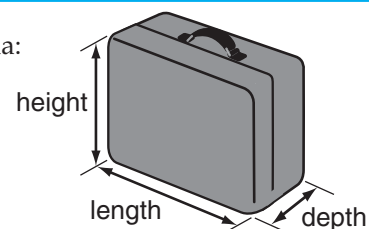
5

An airline calculates the size of bags using this formula:

$\text{size} = \text{length} + \text{depth} + \text{height}$

The size limit for the bags is 110 cm.

Whose bag is over the size limit?



	Passenger	Length (cm)	Depth (cm)	Height (cm)
☐	Jake	30	40	40
☐	Mary	40	20	45
☐	Sanjay	50	20	30
☐	Trudy	60	10	45

6

Ryan bought these 4 items.



The total mass of Ryan's items is **closest to**

- 3 kg
- 4 kg
- 8 kg
- 9 kg

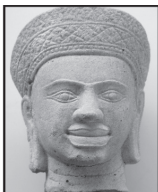


YEAR 9 NUMERACY (NON-CALCULATOR)



7

The picture shows a stone head.



The picture is 3 cm high. The actual head is 60 cm high.

What scale is used in the picture?

- ☐ 3 cm represents 20 cm
- ☐ 6 cm represents 30 cm
- ☐ 1 cm represents 2 cm
- ☐ 1 cm represents 20 cm

Shade one bubble.



8

With the lid on, the mass of this box is 232 grams.



With the lid off, the mass of the box is 186 grams.



What is the mass of the lid?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 46 grams | 56 grams | 144 grams | 154 grams |
| ☐ | ☐ | ☐ | ☐ |

9

A set of traffic lights is red for half the time, orange for $\frac{1}{10}$ of the time and green for the rest of the time.

For what fraction of the time is the set of traffic lights green?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| $\frac{1}{3}$ | $\frac{2}{5}$ | $\frac{6}{10}$ | $\frac{10}{12}$ |
| ☐ | ☐ | ☐ | ☐ |

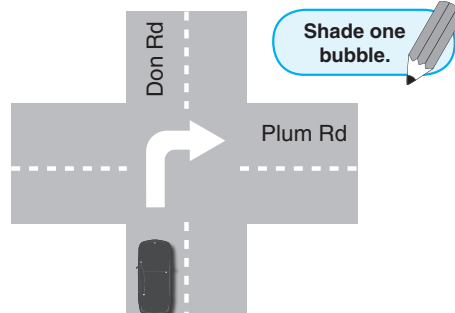
YEAR 9 NUMERACY (NON-CALCULATOR)



- 10** A car is travelling **north-east** along Don Road. The car is about to turn right into Plum Road.

In which direction will the car be travelling **after** it turns right?

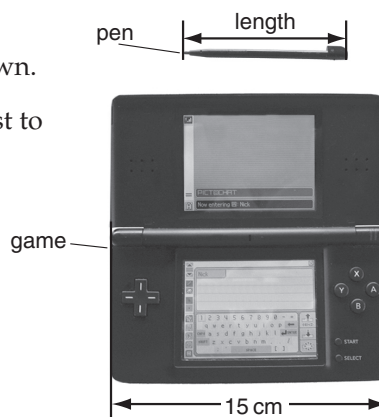
- ☐ north-east
- ☐ south-west
- ☐ north-west
- ☐ south-east



- 11** John's video game comes with a pen. The width of the game is 15 cm as shown.

Which of these measurements is closest to the length of the pen?

- ☐ 5 cm
- ☐ 6 cm
- ☐ 9 cm
- ☐ 12 cm



- 12** Which metric unit would a builder use to measure the volume of sand in a truck like this?

- ☐ cubic metres
- ☐ square metres
- ☐ cubic centimetres
- ☐ square centimetres



- 13** A closed shape has two parallel sides and two other sides of unequal length. What is the shape?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| kite | parallelogram | rectangle | trapezium |
| ☐ | ☐ | ☐ | ☐ |

YEAR 9 NUMERACY (NON-CALCULATOR)



- 14** The table shows how the size of computer memory chips has changed over time.

Shade one bubble.



Year	1989	1994	1999	2004	2009	2014
Size (kilobytes)	16	64	256	1024	4096	?

Using this data, what is the best estimate for the size in kilobytes of a computer chip in 2014?

- ☐ 5000 kilobytes
☐ 8000 kilobytes
☐ 16000 kilobytes
☐ 32000 kilobytes

- 15** Which of these is the longest distance?

0.1203 km

123 m

1230 cm

12030 mm



- 16** This sign shows times that a car can be parked for up to 1 hour.

At which of these times is it permitted to park for 2 hours?

- ☐ 11:00 am Thursday
☐ 4:00 pm Thursday
☐ 11:00 am Saturday
☐ 4:00 pm Saturday



- 17** 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?

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



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



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



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



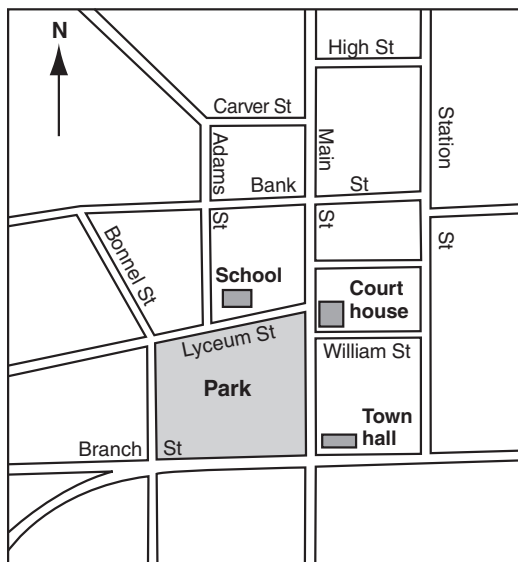
YEAR 9 NUMERACY (NON-CALCULATOR)



18

Jill lives in a street that runs directly north–south.
Her house is north of the park and west of the school.

Shade one bubble.



What street does Jill live in?

Adams St

☐

Bonnel St

☐

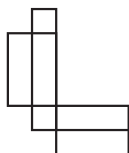
Station St

☐

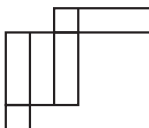
Main St

☐

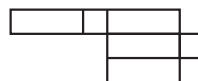
19



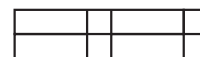
P



Q



R



S

Only two of these nets form a closed rectangular prism.

Which two nets are they?

- ☐ P and R
- ☐ P and Q
- ☐ Q and R
- ☐ R and S

YEAR 9 NUMERACY (NON-CALCULATOR)



- 20** In a gym class, 29 students took turns jumping. Pete recorded the height each student jumped.

Shade one bubble.

Height (cm)

3	2 4
4	1 5 6
5	2 4 4 8 9
6	1 1 3 4 5 6 6 8 9
7	2 2 5 7 8
8	3 5 5
9	1 2

Key: 5|2 means 52

What is the median height?

63 cm

☐

64 cm

☐

65 cm

☐

66 cm

☐

- 21** In these expressions, p and q are positive whole numbers and r is a positive number less than 1.

Which expression gives the **largest** value?

- ☐ $(p + q) \times r$
- ☐ $(p + q) \div r$
- ☐ $(p - q) \times r$
- ☐ $(p - q) \div r$

- 22** A square field has an area of 4000 m^2 .

The length of one side is between

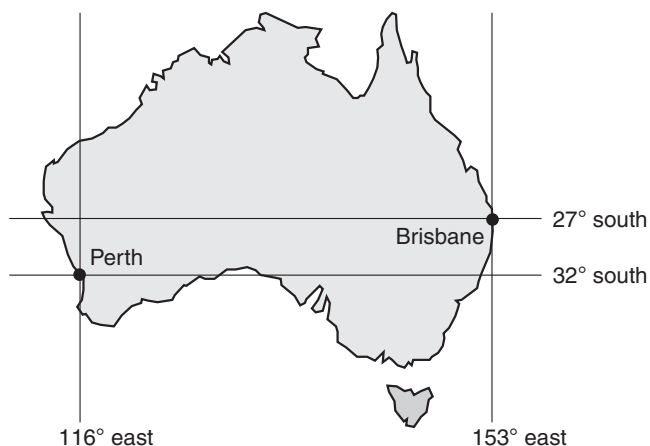
- ☐ 20 m and 24 m.
- ☐ 40 m and 44 m.
- ☐ 60 m and 64 m.
- ☐ 200 m and 204 m.

YEAR 9 NUMERACY (NON-CALCULATOR)



- 23 Brisbane has the latitude and longitude of 27° south, 153° east.

Shade one bubble.

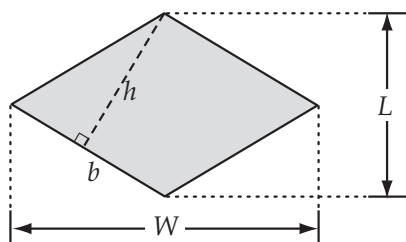


A ship has a latitude and longitude that is 10° north and 5° west of Brisbane.

What is the position of the ship?

- ☐ 17° south, 148° east
- ☐ 17° south, 158° east
- ☐ 37° south, 148° east
- ☐ 37° south, 158° east

- 24 This diagram shows four lengths of a rhombus of side length b .



Which equation must be true?

$2hb = LW$



$2hW = Lb$



$hb = 2LW$



$hW = 2Lb$



YEAR 9 NUMERACY (NON-CALCULATOR)



- 25 The relationship between two variables x and y is shown in the table.

x	0	-1	-2	-3
y	1	3	9	19

Shade one bubble.



Which equation best describes the relationship between x and y ?

$y = 1 - 2x^2$

☐

$y = 2x + 1$

☐

$y = 2x^2 + 1$

☐

$y = 1 - 2x$

☐

- 26 The population of India is approximately 10^9 people.
The population of Mexico is approximately 10^8 people.

Approximately how many **more** people live in India than Mexico?

10 million

☐

90 million

☐

100 million

☐

900 million

☐

- 27 This Ferris wheel turns at a constant speed.
It takes 4 minutes to turn through a complete circle.



Write your answer in the box.



What angle does the Ferris wheel turn through in 90 seconds?

 °

- 28 Ben has 2 identical pizzas.
He cuts one pizza equally into 4 large slices.
He then cuts the other pizza equally into 8 small slices.
A large slice weighs 32 grams more than a small slice.

What is the mass of **one** whole pizza?

 grams

YEAR 9 NUMERACY (NON-CALCULATOR)



- 29 The height of a door is 210 cm.
Darren is $\frac{5}{6}$ of the height of the door.
What is Darren's height?

Write your answer
in the box.

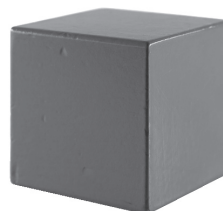
 cm

- 30 Alex collected some eggs from his hens.
Exactly 35% of the eggs were brown.
What is the smallest total number of eggs that he could have collected?

- 31 Helen's office has a security alarm.
To turn it off Helen has to type her
4-digit code into this keypad.
Helen's code is 0051.
Including Helen's code, how many different
4-digit codes are possible?



- 32 The total surface area of a cube is 600 cm^2 .
How long is an edge of the cube?

 cm

STOP – END OF TEST