

# Year 9 Numeracy

Calculator allowed

Full-length Test 8

Writing time: 40 minutes

Use 2B pencil only

## Instructions

- Write your **student name** in the space provided.
- You must be silent during the test.
- If you need to speak to the teacher, raise your hand. Do not speak to other students.
- Answer all questions using a 2B pencil.
- If you wish to change your answer, erase it very thoroughly and then write your new answer.
- Students are permitted to bring a calculator into the test room.

**Student name:**

### QUESTION 1

SHADE ONE BOX



Two places are 5.4 cm apart on a map. The scale of the map is 1 cm represents 5 km.

What is the actual distance between the two places?

- ☐ 5.4 km
 ☐ 54 km
 ☐ 25 km
 ☒ 27 km

### QUESTION 2



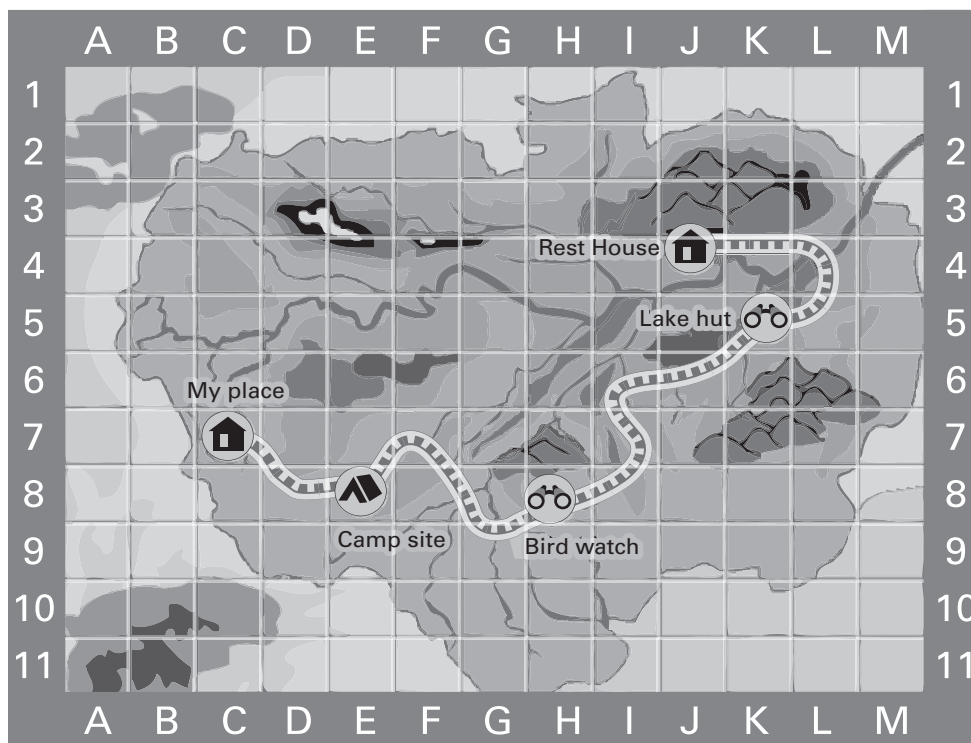
WRITE YOUR OWN ANSWER

A recipe requires three-quarters of a cup of sugar. Alice is making double the amount. How much sugar does she need? Write your answer in simplest terms.

cups

### QUESTION 3

SHADE ONE BOX



What is the grid reference of the bird watch on this map?

- ☒ H8
 ☐ I8
 ☐ H7
 ☐ I7

### QUESTION 4

SHADE ONE BOX



Charlotte noticed that the temperature at her house was 11.5 °C when she woke up. Two hours later, the temperature had risen by 4.6 °C. Later in the day, a storm hit and the temperature fell by 5.3 °C. What was the temperature then?

- ☒ 10.8 °C
 ☐ 9.8 °C
 ☐ 11.8 °C
 ☐ 18.3 °C

### QUESTION 5

SHADE ONE BOX



What is the gradient of the line joining (-1, 2) and (3, 4)?

- ☒  $\frac{1}{2}$ 
☐  $-\frac{1}{2}$ 
☐ -2
 ☐ 2

### QUESTION 6

$$1^3 + 2^3 + 3^3 = ?$$

☐ 18

☒ 36

☐ 84

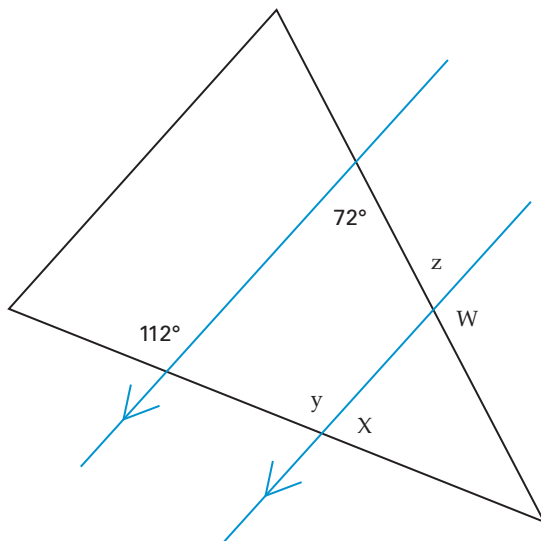
☐ 216

SHADE ONE BOX



### QUESTION 7

Which one of the following angles is equal to  $72^\circ$ ?


☐ w

☐ x

☐ y

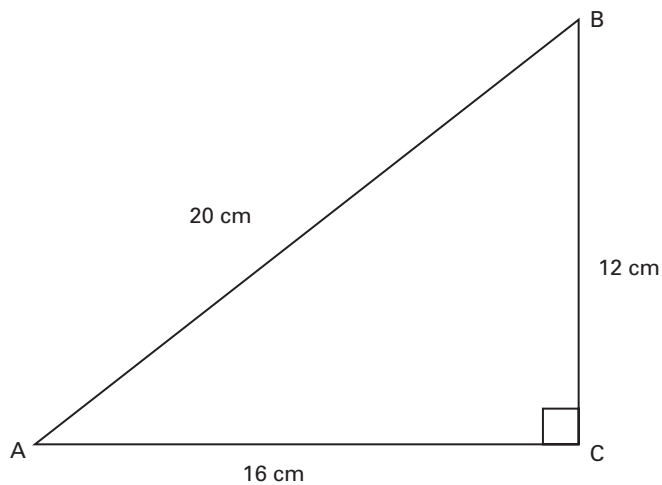
☒ z

SHADE ONE BOX



### QUESTION 8

What is the area of the triangle ABC shown?


☒  $96 \text{ cm}^2$ 
☐  $120 \text{ cm}^2$ 
☐  $160 \text{ cm}^2$ 
☐  $72 \text{ cm}^2$ 

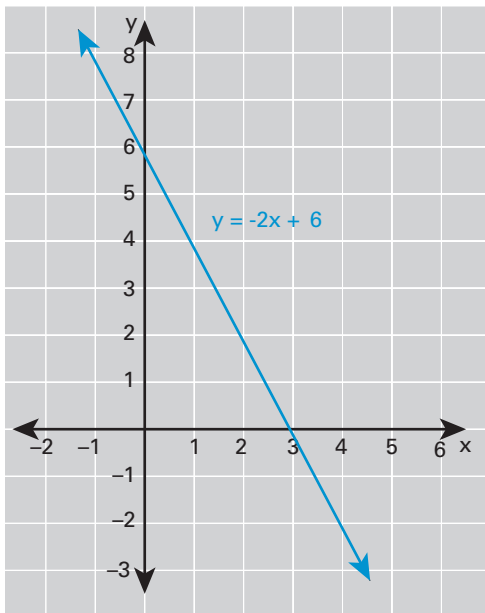
SHADE ONE BOX



### QUESTION 9



WRITE YOUR OWN ANSWER

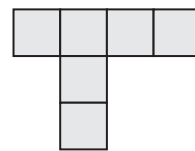
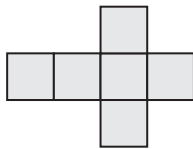
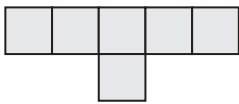


What are the coordinates of the x-intercept of the graph above?

( 3, 0 )

### QUESTION 10

Which of the following is a net of a cube?



SHADE ONE BOX



### QUESTION 11

Look at the table below. The rule for this table is  $\text{output} = 3 \times \text{input} + 5$ .

Input	Output
5	20
10	?
15	50
20	65

What is the missing value in the table?

☐ 45

☐ 40

☒ 35

☐ 30

SHADE ONE BOX



### QUESTION 12

Which number is exactly halfway between  $2\frac{1}{3}$  and  $3\frac{2}{3}$ ?

3



WRITE YOUR OWN ANSWER

**QUESTION 13**

SHADE ONE BOX



When the advertised new car price of \$31 689 is reduced at the end of the financial year to \$29 907, what is the approximate percentage decrease offered?

☐ 6%☐ 17.82%☒ 5.6%☐ 5.9%**QUESTION 14**

WRITE YOUR OWN ANSWER

The table shows the amount of time Tanya spent studying over five days.

Day	Time
Monday	25 min
Tuesday	40 min
Wednesday	48 min
Thursday	1 h
Friday	27 min

What was the average time Tanya spent studying?

 minutes**QUESTION 15**

WRITE YOUR OWN ANSWER

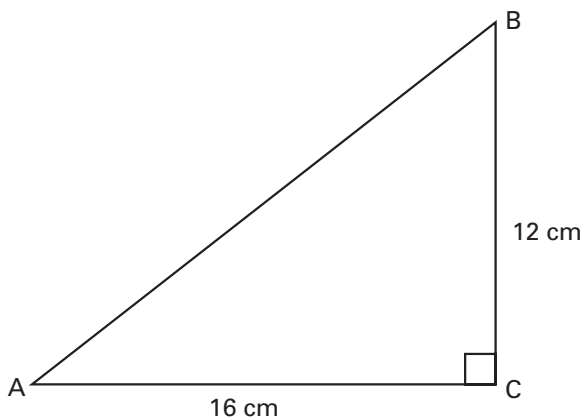
One-sixth of Gemma's income is spent on train fares. This represents \$33. What is Gemma's total income?

**QUESTION 16**

SHADE ONE BOX



What is the length of the hypotenuse of triangle ABC?

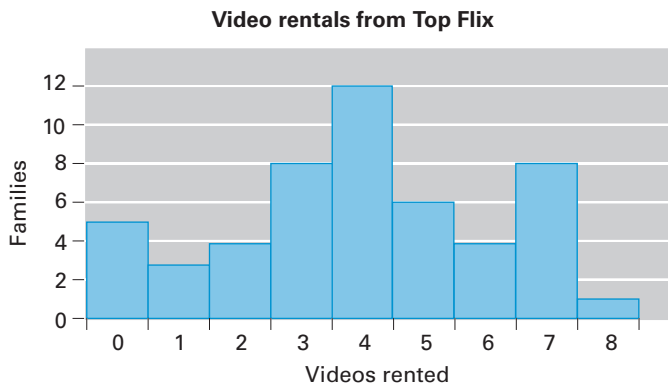
☐ 28 cm☒ 20 cm☐ 10.58 cm☐ 13.9 cm

### QUESTION 17

SHADE ONE BOX



The graph below shows the number of videos rented by some families from Top Flix in one week.



How many families rented more than four videos?

☒ 19

☐ 12

☐ 6

☐ 31

### QUESTION 18

SHADE ONE BOX



Ming bought a packet of 40 biscuits on Saturday. On Sunday she ate half of them. On Monday she ate one-quarter of the remaining biscuits. How many biscuits did Ming have left on Tuesday?

☐ 10

☒ 15

☐ 16

☐ 20

### QUESTION 19



WRITE YOUR OWN ANSWER

Two normal dice are tossed. What is the probability of getting a total of 1?

0

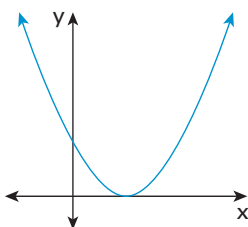
### QUESTION 20

SHADE ONE BOX

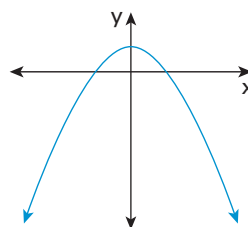


Which of the following curves could be described by  $y = (x + 2)^2$ ?

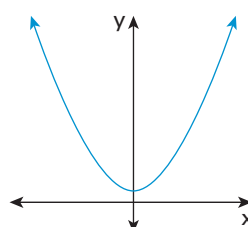
☐



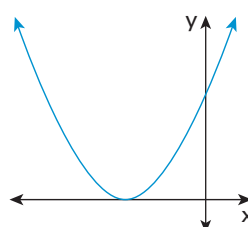
☐



☐



☒



### QUESTION 21



WRITE YOUR OWN ANSWER

Maxwell gets pocket money for walking the dog. He is paid \$4 for every hour, rounded to the nearest hour, that he walks each week. The table below shows his record for this week.

Monday	55 min
Tuesday	45 min
Wednesday	50 min
Thursday	20 min
Friday	1 h

How much pocket money did he get this week? \$

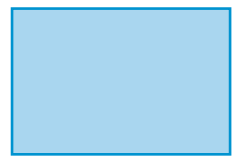
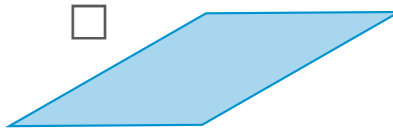
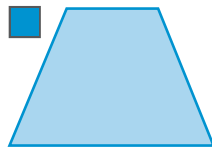
16

### QUESTION 22

SHADE ONE BOX



Which of the following shapes has exactly one axis of symmetry?

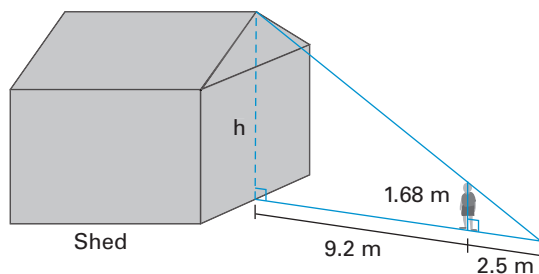


### QUESTION 23



WRITE YOUR OWN ANSWER

What is the height (h) of the shed shown in this diagram?  
Write your answer correct to two decimal places.



7.86 m

### QUESTION 24



WRITE YOUR OWN ANSWER

A car salesperson is paid a base salary of \$10 000 p.a. plus 4.25% on the value of cars he sells.

How much does he earn in a year when he sells \$1.44 million worth of cars? \$

71 200

### QUESTION 25



WRITE YOUR OWN ANSWER

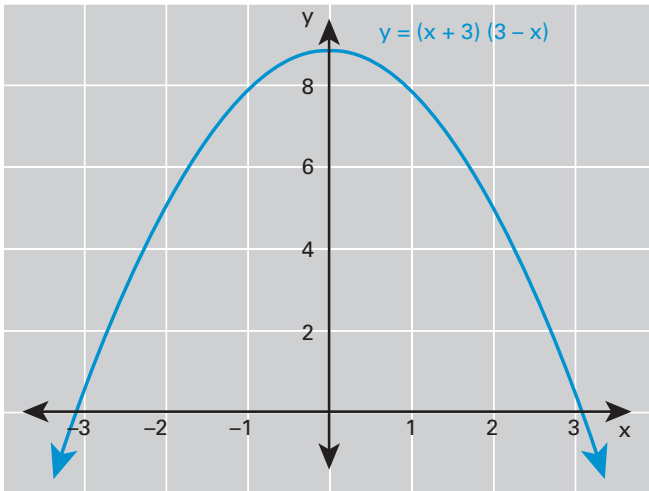
A cube has a surface area of  $6a^2$ . If each side length is doubled, what is the surface area of the new cube?

$24a^2$

### QUESTION 26

Using the graph, what is the solution of  $(x + 3)(3 - x) = 5$ ?

SHADE ONE BOX



- ☐  $x = 0$
- ☐  $x = -1.5$  or  $x = 1.5$
- ☐  $x = -3$  or  $x = 3$
- ☒  $x = -2$  or  $x = 2$

### QUESTION 27

Using the map below, what is the true bearing of the windmill from the mud hut? Give your answer to the nearest 10 degrees.



WRITE YOUR OWN ANSWER



280 degrees

### QUESTION 28

The formula for calculating the volume of a cylinder is  $V = \pi r^2 h$ .  
What is the height of a cylinder with a volume of  $110 \text{ cm}^3$  and radius of  $2.5 \text{ cm}$ ?  
Write your answer to two significant figures.



WRITE YOUR OWN ANSWER

5.6 cm



**QUESTION 29**

SHADE ONE BOX

$(7.56 \times 10^{23}) \times (3.6 \times 10^{-6}) = ?$

☒  $2.7216 \times 10^{18}$

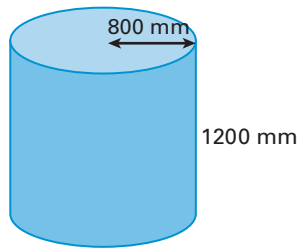
☐  $2.7216 \times 10^{30}$

☐  $2.1 \times 10^{29}$

☐  $2.1 \times 10^{17}$

**QUESTION 30****WRITE YOUR OWN ANSWER**

Find the volume of water, in litres, that could be collected from rainwater run-off to fill each of these water tanks. (Remember: 1 L can fit in a cube with a side length of 10 cm.) Write your answer to the nearest litre.



2413 L

**QUESTION 31**

SHADE ONE BOX

A coin is tossed four times. What is the probability of getting four heads?

☐ 0.25

☐ 0.125

☐ 0.625

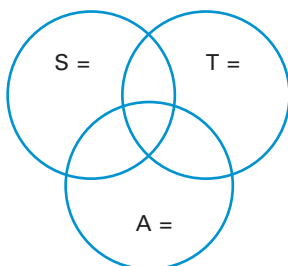
☒ 0.0625

**QUESTION 32****WRITE YOUR OWN ANSWER**

A school has 100 students in Year 9. They have three sports to choose from: softball, tennis or athletics. Some students do not play a sport.

- 5 students select all three sports.
- 13 select softball and tennis.
- 17 select tennis and athletics.
- 21 select athletics and softball.
- 46 select softball.
- 35 select tennis.
- 55 select athletics.

Use a Venn diagram or another method to determine the probability of a student selecting exactly one sport.

0.49 or  $\frac{49}{100}$