

# NUMERACY NON-CALCULATOR



YEAR

9

2012

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

The picture shows five stacks of \$2 coins.



How much money is there in total?

\$10

\$16

\$20

\$22

2

Helen paid \$1.19 for 7 prints at the camera shop.

How much did she pay for each print?

\$0.11

\$0.17

\$1.12

\$1.26

3

Luke walks to school every day.

The distance from his home to school is 1.5 kilometres.

Luke leaves home and walks 500 metres towards school.

What fraction of the distance to school has he walked?

$\frac{1}{5}$

$\frac{1}{4}$

$\frac{1}{3}$

$\frac{1}{2}$

4

Sharon bought 3 fruit buns and 4 bread rolls at the bakery.

The buns cost 80 cents each. The rolls cost 40 cents each.

How much did Sharon pay?

\$1.20

\$3.60

\$4.00

\$4.80

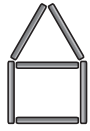
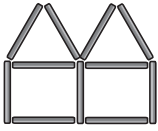
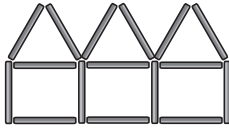


\$8.40

# YEAR 9 NUMERACY (NON-CALCULATOR)



5

Joan is making a pattern with sticks. She continues adding sticks as shown.

Step 1	Step 2	Step 3	...	Step 6
			...	
6 sticks	11 sticks	16 sticks	...	 sticks

How many sticks will Joan need to make Step 6 of her pattern?

30

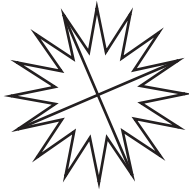
31

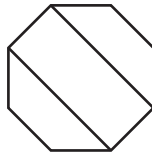
32

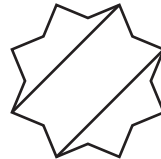
33

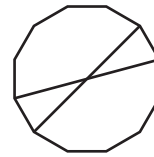
6

Which of these designs looks identical after a quarter turn?










7

Which expression is equal to  $5b^3$ ?

$8 \times b$

$15 \times b$

$5 \times b \times b \times b$

$5 + b + b + b$

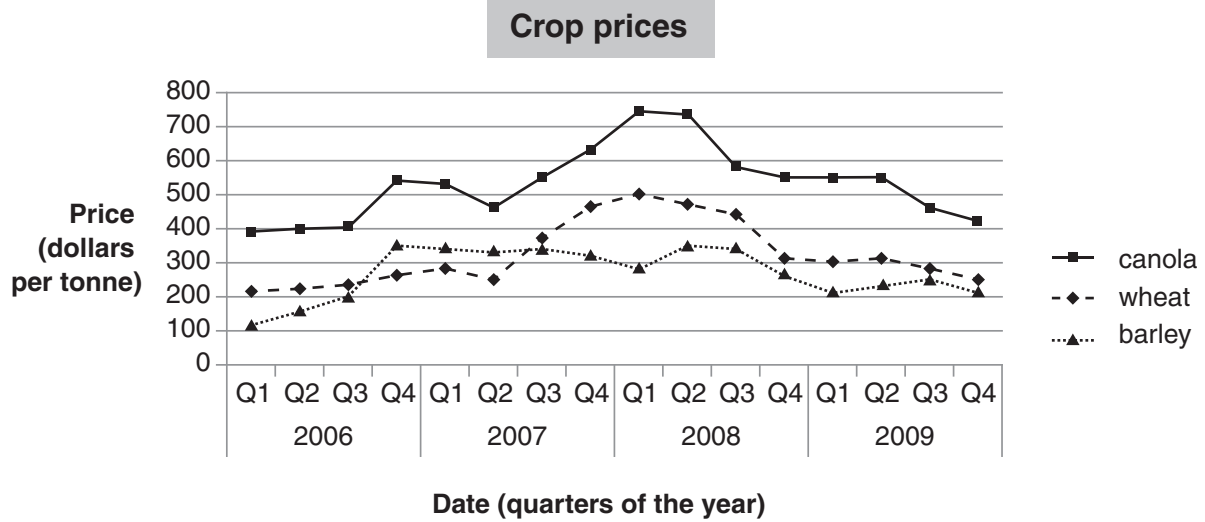
$5 \times 5 \times 5 \times b \times b \times b$

# YEAR 9 NUMERACY (NON-CALCULATOR)



8

This graph shows the price per tonne of crops grown in a country.



For several quarters, the price of barley was greater than the price of wheat. In one of those quarters, the price of canola fell below \$500 per tonne.

Which quarter was this?

2006 Q3

2007 Q1

2007 Q2

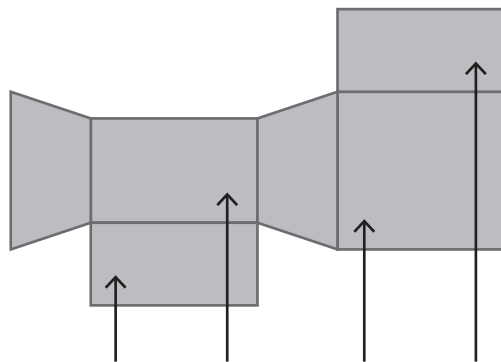
2007 Q3

9

Rita is drawing the net of this box.



Where should Rita put this symbol on the net?





## YEAR 9 NUMERACY (NON-CALCULATOR)











10

Dean uses the same rule to change each  into a .

	
2	4
3	7
7	19

Which of these rules did Dean use?

-  =   $\times 1 + 2$
-  =   $\times 2 + 5$
-  =   $\times 3 - 2$
-  =   $\times 4 - 5$

11

Terry bought 7 boxes of pencils. In total this was 84 pencils.

Which equation correctly shows  $n$  as the average number of pencils in each box?

- $84 \times 7 = n$
- $84 - 7 = n$
- $n \div 7 = 84$
- $n \times 7 = 84$

12

A standard six-sided dice is rolled.

Which of the following events has a probability less than 1?

- rolling a number greater than 0
- rolling a number less than or equal to 7
- rolling a number greater than or equal to 1
- rolling a number greater than or equal to 6

## YEAR 9 NUMERACY (NON-CALCULATOR)



13

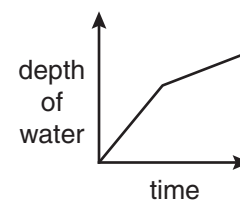
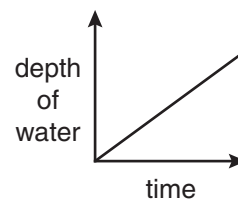
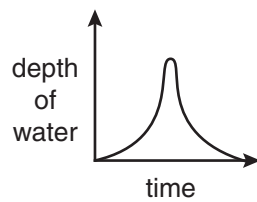
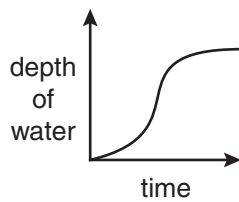
Joe filled this empty bucket with water from a tap.

First the water ran from the tap slowly.

Then the water ran quickly until the bucket was nearly full.

As the water reached the top of the bucket, he turned the tap off.

Which graph best shows how the depth of water in the bucket changed?



14

To make a syrup, 3 cups of water must be used for every 4 cups of sugar.

How many cups of water are needed for 6 cups of sugar?

1.5 cups

4.5 cups

5 cups

8 cups

15

Sam leaves home at 10:35 am to go to a movie.

The movie starts at 12:20 pm.

How much time does Sam have before the movie starts?

1 hour and 45 minutes

1 hour and 55 minutes

2 hours and 15 minutes

2 hours and 25 minutes

16

Which one of these is equal to  $3\frac{5}{7}$ ?

$8 \div 7$

$15 \div 7$

$21 \div 7$

$26 \div 7$

$35 \div 7$

# YEAR 9 NUMERACY (NON-CALCULATOR)



17

Which of these multiplications gives the greatest value?

$0.031 \times 100$



$0.132 \times 10$



$0.312 \times 0.1$



$0.0003 \times 1000$



18

$35 \times ? = 14$

Which fraction is **?** equal to?

$\frac{2}{5}$



$\frac{5}{7}$



$\frac{2}{7}$



$\frac{1}{5}$



19

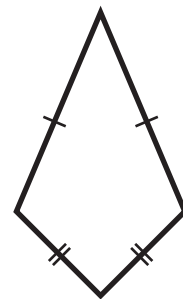
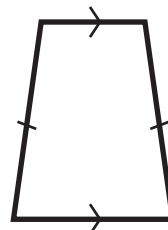
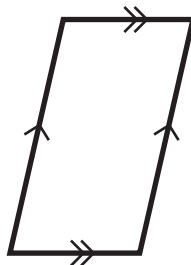
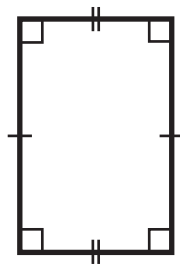
Bindi made 36 muffins. Some of the muffins were apple and some were pear. Both kinds of muffins looked the same.

Tegan took a muffin. She had a 1 in 9 chance of taking a pear muffin.

How many **apple** muffins did Bindi make?

20

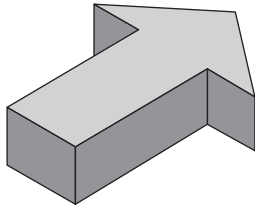
Which one of these shapes has diagonals that cross at right-angles?



## YEAR 9 NUMERACY (NON-CALCULATOR)



21



How many edges does this prism have?

7

12

15

19

21

22

This table shows the cost of planting a crop in paddocks of different areas.

<i>area of paddock (hectares)</i>	20	40	60	80	100
<i>cost of planting crop (\$)</i>	1600	3200	4800	6400	8000

Complete the rule so that it agrees with the values in the table.

*cost of planting crop* =   $\times$  *area of paddock*

23

A positive number  $n$  is multiplied by 4, then 20 is added.

Which of the following operations would give the same result?

- Adding 20 to  $n$ , then multiplying by 4.
- Adding 4 to  $n$ , then multiplying by 20.
- Adding 4 to  $n$ , then multiplying by 5.
- Adding 5 to  $n$ , then multiplying by 4.

24

In a school library there are 1000 books.

450 of the books are fiction and the rest are non-fiction.

What is the ratio of fiction to non-fiction books in the library?

9 : 11

9 : 10

9 : 20

9 : 13



## YEAR 9 NUMERACY (NON-CALCULATOR)



25

Dale is a beekeeper.  
The mass of 500 millilitres of Dale's honey is 700 grams.  
How many **litres** is 3.5 kilograms of Dale's honey?

litres

26

This table shows Jack's results for a two-day canoe race.

	Time (hours:minutes:seconds)
Day 1	7:57:54
Day 2	6:59:56

What was Jack's total time for the two-day race?

13:56:50

13:116:110

14:17:10

14:57:50

27

Sarah bought two full bags of sand.  
Both bags had the same amount of sand in them.  
After she used  $\frac{1}{4}$  of one bag of sand, she had a total of 35 kilograms of sand left.  
How many kilograms of sand were in one full bag?

kilograms

28

Write the answer to this division in the box.

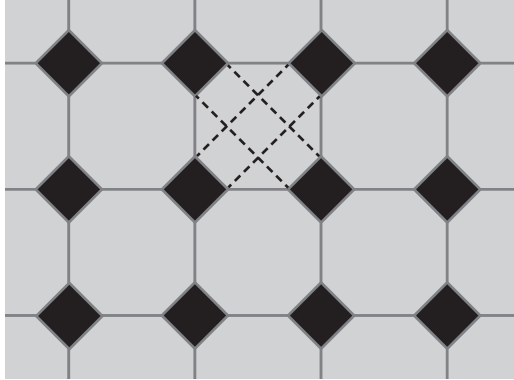
$12.24 \div 0.12 =$

## YEAR 9 NUMERACY (NON-CALCULATOR)



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This diagram shows a common tiling pattern that uses squares and octagons.



The dotted lines show that the area of each octagon is a multiple of the area of each square.

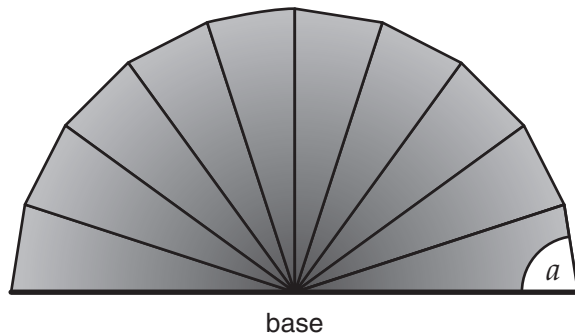
The area of each octagon is  $175 \text{ cm}^2$ .

What is the side length of each square?

cm

30

Jerry made this paper fan.



He used 10 identical isosceles triangles.

When the fan is open, its base forms a straight line.

How many degrees is the angle marked  $a$ ?

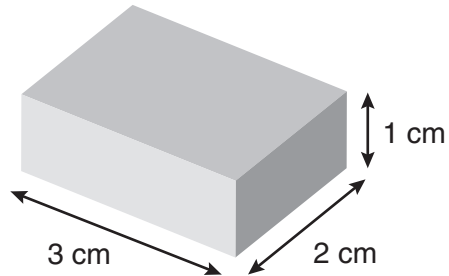
degrees

## YEAR 9 NUMERACY (NON-CALCULATOR)



31

Kyle has some wooden blocks the same as the one shown.



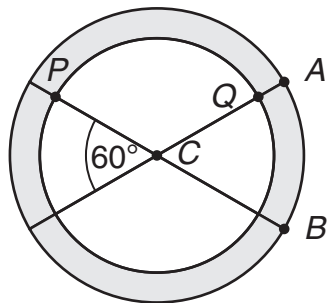
He stacks them face to face to make a solid cube.

What is the **smallest** possible volume of the cube?

cubic centimetres

32

This symbol is made from two circles and two lines.  
The circles have the same centre,  $C$ .



The radius of the small circle is  $\frac{3}{4}$  the radius of the large circle.

The angle between the two lines is  $60^\circ$ . The arc  $AB$  is 16 mm.

What is the length of the arc  $PQ$  in millimetres?

mm

**STOP – END OF TEST**