YEAR

9

2012

NUMERACY
CALCULATOR ALLOWED

Use 2B or HB pencil **only**

YEAR 9 NUMERACY (CALCULATOR ALLOWED)

PRACTICE QUESTIONS

P1 50, 100, 150, 200, 250, ❓

Which number comes next in this sequence?

251	260	300	350
⬭	⬭	⬭	⬭

P2 Write a number in the box to make this number sentence correct.
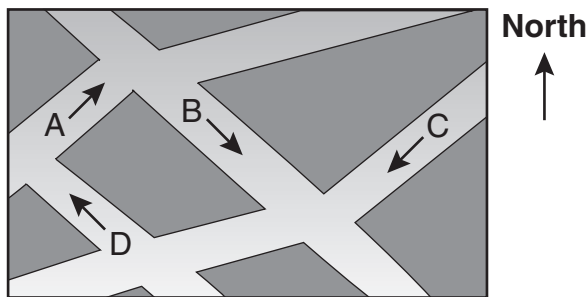
$6 + 4 =$ ☐

1 An airline bought 6 new planes for a total cost of $721.5 million. Each plane cost the same amount.

How much did each plane cost?

- ⬭ $120.25 million
- ⬭ $360.75 million
- ⬭ $715.5 million
- ⬭ $4329 million

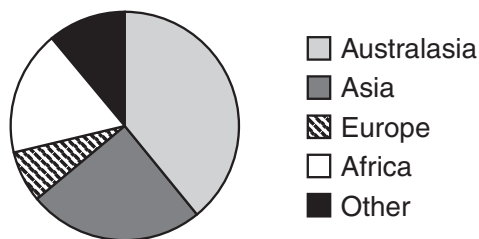**2** The map shows the different directions four cars are travelling.

Which car is travelling south-east?

Car A	Car B	Car C	Car D
⬭	⬭	⬭	⬭

3 Martina asked students in her class where they were born. She used the data to draw this graph.

Region of birth

☐ Australasia
▩ Asia
▨ Europe
☐ Africa
■ Other

Where were about a quarter of the students born?

Australasia	Asia	Europe	Africa
⬭	⬭	⬭	⬭

4 These are three pictures of the same sculpture.

The sculpture is in the shape of

- ⬭ a rectangle and a circle.
- ⬭ a rectangle and a sphere.
- ⬭ a prism and a circle.
- ⬭ a prism and a sphere.

5 Lee wants to bake 7 cakes.
Each cake needs 4 eggs. He has no eggs so he goes to the shop.
The shop sells eggs in cartons of 6.

How many cartons of eggs does Lee need?

2	4	5	7
⬭	⬭	⬭	⬭

6 Every day Jim drives 20 kilometres to work.
On Monday his average speed was 80 kilometres per hour.
On Tuesday his average speed was only 20 kilometres per hour.

How many more minutes did it take Jim to drive to work on Tuesday than Monday?

15	45	60	75
⬭	⬭	⬭	⬭

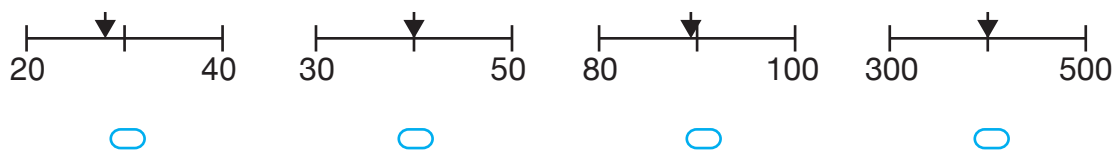**7**   Which of these numbers is closest in value to $\frac{221}{272}$?
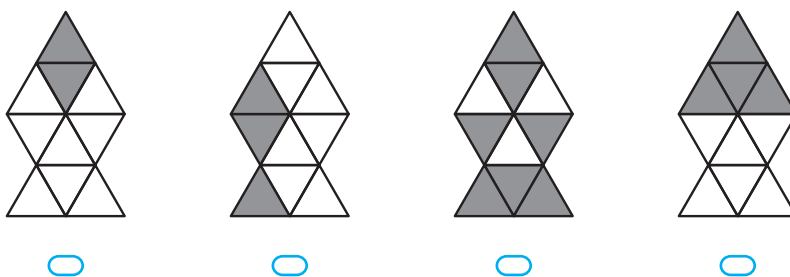
0.5   0.6   0.7   0.8   1.2

⊖   ⊖   ⊖   ⊖   ⊖

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8   Which arrow is pointing to the approximate position of $\sqrt{800}$ on a number line?

20 ─── 40   30 ─── 50   80 ─── 100   300 ─── 500

⊖   ⊖   ⊖   ⊖

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9   Which shape has $\frac{2}{5}$ shaded?

⊖   ⊖   ⊖   ⊖

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10   This flowchart shows the rules for a number game.

Input number → Is the number odd? → yes → Add 3 to the number → Output number

no → Divide the number by 2
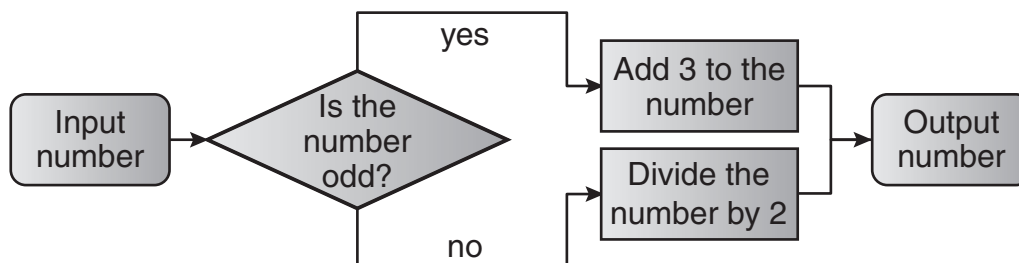
The output number is 16.

What are two possible values for the input number?

8 and 13   8 and 19   13 and 32   19 and 32

⊖   ⊖   ⊖   ⊖

11 The opening hours of a post office are shown on this sign.

OPENING HOURS
Monday - Friday
7am - 7pm

How many hours each week is the post office open?

60	70	84	98
⬭	⬭	⬭	⬭

12 Alicia has a bag of jelly beans. 30% of the jelly beans are red.
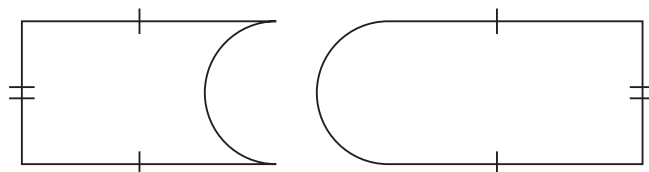She takes a blue jelly bean from the bag and eats it.
Without looking, she takes another jelly bean from the bag.

What is the chance that this jelly bean is **red**?

⬭ less than 30%

⬭ equal to 30%

⬭ greater than 30%

13 Tiles of two shapes are used to cover a floor.

The basic shapes used in designing the tiles are identical rectangles and semicircles.

Which of the following statements is **true** about these two tile shapes?

⬭ They have the same area and the same perimeter.

⬭ They have different areas but the same perimeter.

⬭ They have the same area but different perimeters.

⬭ They have different areas and different perimeters.

14 Mike sells cars. His weekly salary, S dollars, is calculated using this rule:

$$S = 500 + 0.02V$$

where V is the total value in dollars of the cars he sells that week.
Last week, the total value of the cars Mike sold was $120 000.

What was Mike's salary last week?

$740	$1205	$2900	$6000	$24 000
○	○	○	○	○

15 Which of the following equations is **not** true for all positive values of y?

○ $y^2 = y \times 2$
○ $0 = y - y$
○ $y + y = 2 \times y$
○ $1 = y \div y$

16 Tim takes 72 paces to walk across the school yard.
His pace is 90 centimetres long.
Lara's pace is 80 centimetres long.

How many paces does Lara take to walk across the school yard?

62	64	81	82	100
○	○	○	○	○

17 Sarah is painting a wall using three colours.

She paints $\dfrac{1}{3}$ of the wall blue, $\dfrac{1}{4}$ of the wall green and the rest yellow.

What fraction of the wall does she paint yellow?

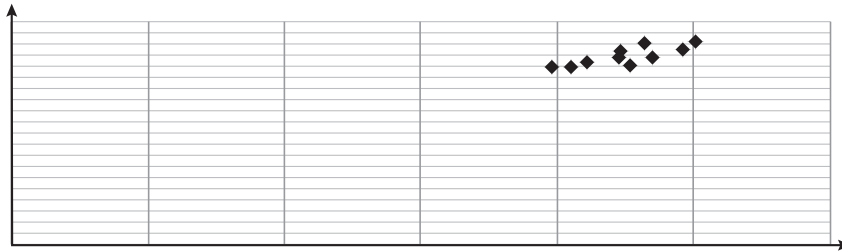| $\dfrac{10}{12}$	$\dfrac{5}{12}$	$\dfrac{5}{7}$	$\dfrac{7}{12}$	$\dfrac{2}{7}$
○	○	○	○	○

18

Sally collected some data from her class.
She used the data to draw this graph on her computer.
She accidentally removed all the labels.

Which kind of data could Sally be showing on her graph?

	Horizontal axis	Vertical axis
○	Favourite colour	Number of students
○	Hand span	Height
○	Gender	Height
○	Shoe size	Number of students

19

Nina is making a line of tiles on a wall.
The tiles come in 6 designs and she always puts the tiles in the same order.
The picture shows the start of her line of tiles.

Each tile costs $3.50 and she uses $112 worth of tiles.

Which of these is the last tile in her line of tiles?

○   ○   ○   ○   ○

20

$$200 = 1000 - \frac{n}{4}$$

What is the value of n ?

50	200	800	3200	4800
○	○	○	○	○

21 The sum of three angles around a point is 360°.
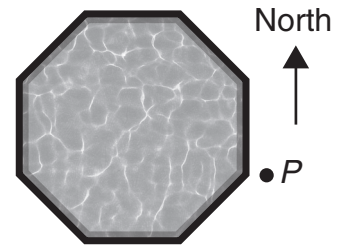Two of these angles are acute angles.

What must the third angle be?

- ○ an acute angle
- ○ an obtuse angle
- ○ a straight angle
- ○ a reflex angle

22 Starting at point P, Dave walks around this swimming pool.
He starts by heading north.

In which direction is he heading when he is $\frac{2}{3}$ of the distance around?

North

$\bullet P$

west	south-west	south	south-east
○	○	○	○

23 Jason uses these formulas to calculate how the money in his bank account grows.

$$Year_1 = \$1000, \quad Year_2 = Year_1 + \frac{Year_1}{10}, \quad Year_3 = Year_2 + \frac{Year_2}{10}, \quad Year_4 = Year_3 + \frac{Year_3}{10}$$

What is the value of $Year_4$?

$ _____

24 Paul and Gary both bought a quantity of the same type of olives at a shop.
Gary bought half the quantity of olives that Paul bought.
The total cost of Gary's and Paul's olives was $14.85.

How much did **Gary's** olives cost?

$ _____

**25** Erica used a computer to make a pattern of triangles.

Number of black triangles	1	3	9	27	81	243	…
Number of white triangles	0	1	4	13	40	121	…

Erica continued the pattern until the shape had 6561 black triangles.

How many white triangles did the shape have?

26 Steve had a rectangular piece of paper that was 90 cm long and 60 cm wide.
He cut the paper into right-angled triangles the same size and shape as this one.

6 cm

12 cm
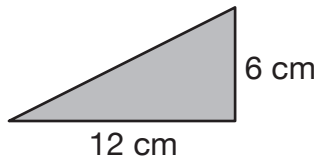
There are no pieces of the paper left over.

How many of these triangles did he cut the paper into?

50   75   100   150

27 A gardener plants 50 seeds from the same packet into three pots.

This table shows the number of seeds planted and the percentage of seeds that sprouted.

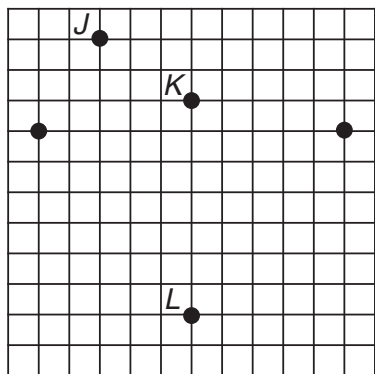| Pot label	Number of seeds planted	Percentage that sprouted
A	12	75%
B	20	50%
C	18	50%

What percentage of the seeds from the packet sprouted?

%

28 Shauna plotted five points on this square grid.

Point *K* is 28 millimetres from point *L*.
Shauna adds a sixth point, *M*, so that the arrangement of points has one line of symmetry.

How far is point *M* from point *J*?

| | millimetres

29 A teacher is showing a picture on a screen.
The picture is 12 cm by 8 cm. The screen is 2.4 m by 2 m.

The teacher enlarges the image on the screen so it is as big as possible without distorting its proportions.

What are the dimensions (in cm) of the enlarged picture?

| | cm by | | cm

30 When 4 people meet and each shakes hands once with everybody else there is a total of 6 separate handshakes.

This formula gives the total number of handshakes (*H*) when a group of *N* people meet.
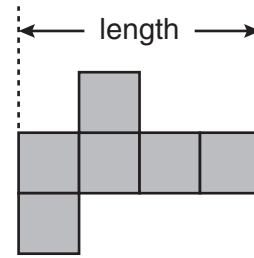
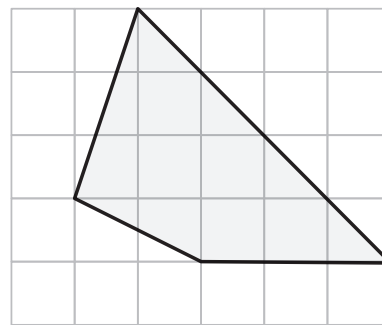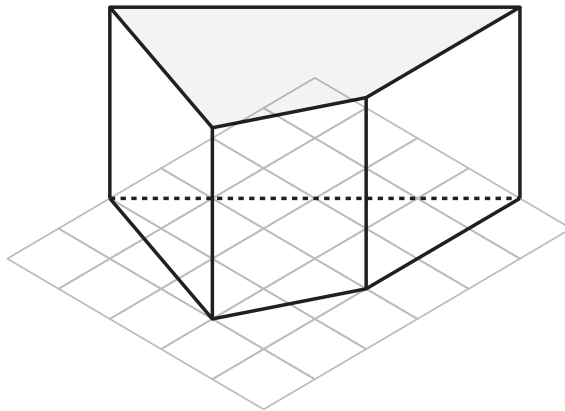$$H = 0.5N(N - 1)$$

For what value of *N* does *H* = 300?

| |

31 This is the net of a cube.

The cube has a volume of 343 cubic millimetres.

What is the length of the net in millimetres?

length

[ ] millimetres

32 The diagram shows two views of a prism on a grid.

Each square on the grid has an area of one square centimetre.
The vertical edges of the prism are 3 centimetres high.

What is the volume of the prism in cubic centimetres?

[ ] cubic centimetres

STOP – END OF TEST

Do not turn this page.