Student application number	C	2	3	0				

First name(s) _____

Family name _____

8605577450

Opportunity Class Placement Test

Mathematical Reasoning Question Paper

2023 **40 minutes**

INSTRUCTIONS FOR CANDIDATES

Please read this page carefully.

DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO.

A separate answer sheet is provided for this test. Please fill in the following information on your answer sheet and on this question paper:

- Student application number
- First name(s)
- Family name

There are **35** questions in this paper. For each question there are five possible answers, **A**, **B**, **C**, **D** and **E**. Choose the **one** correct answer and record your choice on the separate answer sheet. If you make a mistake, erase thoroughly and try again.

You will **not** lose marks for incorrect answers, so you should attempt **all 35** questions.

You **must** complete the answer sheet within the time limit. There will **not** be any extra time at the end of the exam to record your answers on the answer sheet.

You can use the question paper for working out, but no extra paper is allowed.

Calculators and dictionaries are **NOT** allowed.

Cambridge Assessment Admissions Testing

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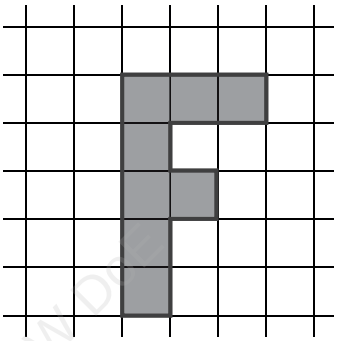
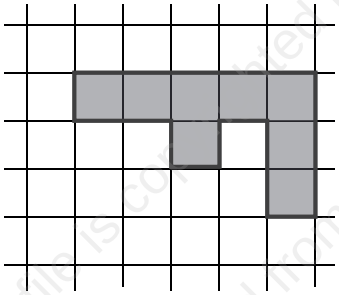
1 An F-shape is made out of squares, as shown:

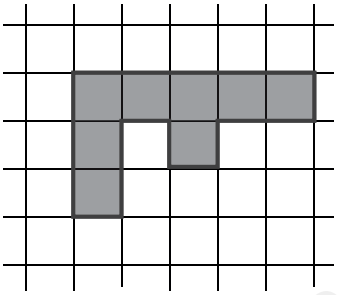


How will the F-shape look after it is turned a quarter of a turn anti-clockwise?

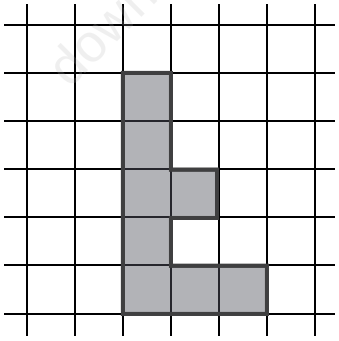
A



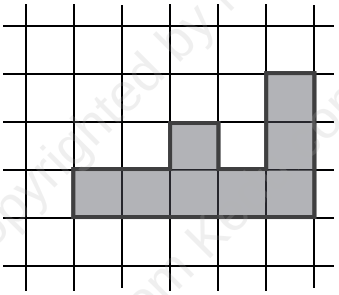
B



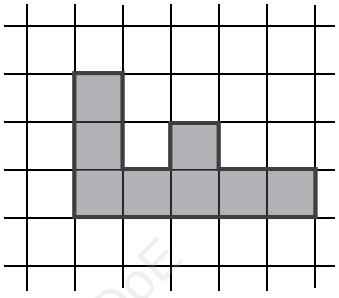
C



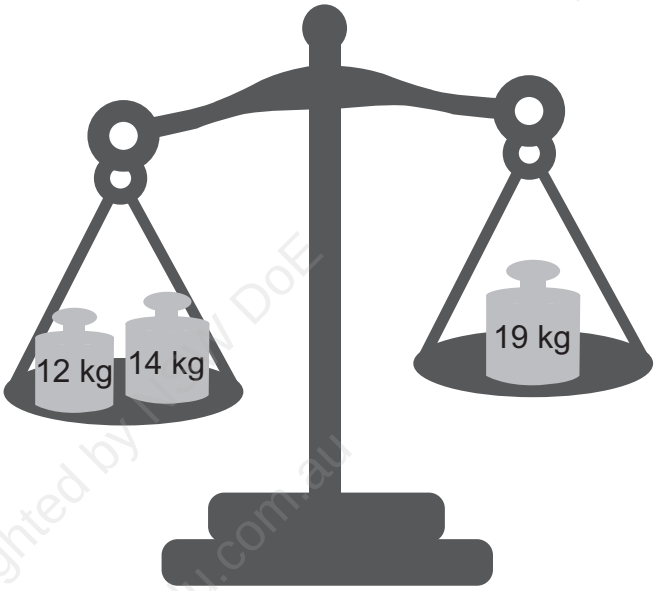
D



E



2 Amber wants to balance these scales.



Which of the following methods would balance the scales?

1 Add 5 kg and 7 kg on the right.

2 Add 9 kg on the left and add 16 kg on the right.

3 Add 8 kg on the left and add 8 kg on the right.

A method 1 only

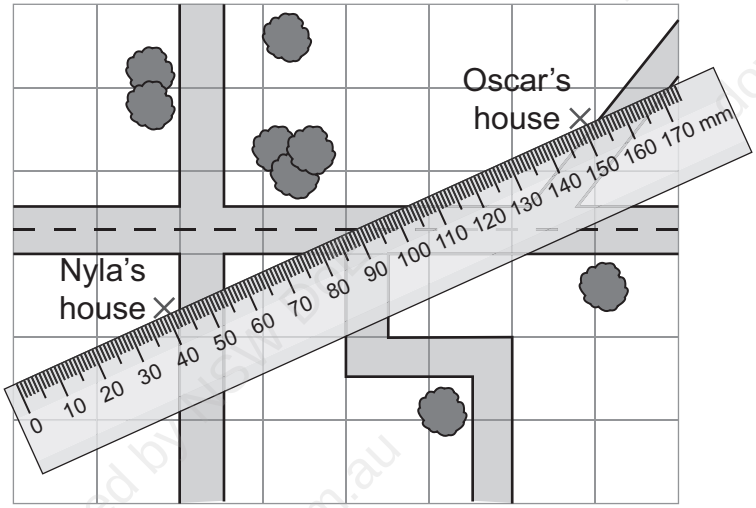
B method 2 only

C method 3 only

D methods 1 and 2 only

E methods 1 and 3 only

3 The diagram is a map showing the positions of Nyla and Oscar's front doors.



1 cm = 10 m

Nyla's ruler measures distance in millimetres.

The scale is: 1 centimetre on the map represents 10 metres in real life.

How far apart are Nyla and Oscar's front doors in real life?

A 110 m

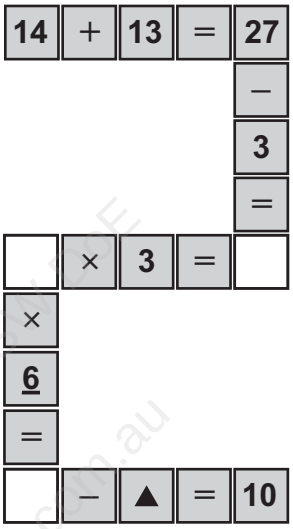
B 150 m

C 190 m

D 1100 m

E 1500 m

4 When the puzzle below is completed, each row and each column will contain a correct number sentence.



What number does ▲ represent?

A 26

B 32

C 38

D 50

E 58

5 Which one of the following numbers is closest to 2?

A $1\frac{3}{4}$

B $1\frac{1}{2}$

C $2\frac{2}{3}$

D $2\frac{1}{3}$

E $2\frac{1}{2}$

6 What number do you get if you add 11 thousands, 11 hundreds, 11 tens and 11 ones?

A 11 111

B 11 131

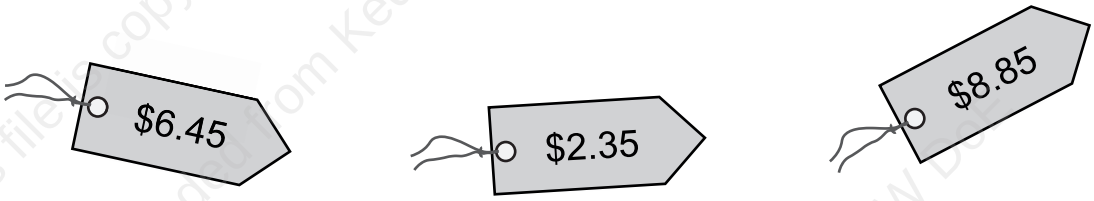
C 11 231

D 12 221

E 11 111 111

7 Tristan has $20.

He wants to estimate the change he will receive when he buys three items at these prices:



To estimate the total cost, he rounds each price to the nearest dollar and then adds the rounded values together.

How much change does he estimate he will get?

A $0

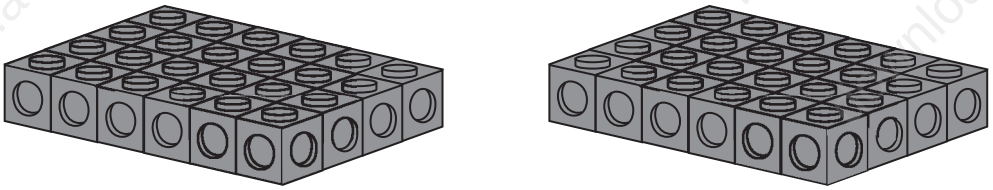
B $1

C $2

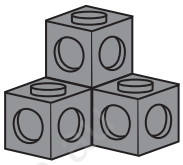
D $3

E $4

8 Andrea has these two objects, each made of identical cubes:



If she breaks them up into cubes, how many of the objects below can she make?



A 6

B 8

C 10

D 12

E 14

9 Maisy is building a wall using bricks, one layer at a time.

She always completes one layer before she starts the next layer.

Each layer is made from 6 bricks.

Maisy has 26 bricks and she uses them all.

Which layer is she working on when she lays her last brick?

A 4^{th}

B 5^{th}

C 6^{th}

D 7^{th}

E 8^{th}

10 Oliver has a box of 16 coloured discs.

- 5 discs are red.
- 2 discs are green.
- 8 discs are blue.
- 1 disc is yellow.

He picks one disc at random from the box.

Which of these statements are correct?

1 It is certain that he picks a blue disc.

2 It is equally likely that he picks a blue disc or does not pick a blue disc.

3 It is possible for him to pick a yellow disc.

A none of them

B statements 1 and 2 only

C statements 1 and 3 only

D statements 2 and 3 only

E statements 1, 2 and 3

11 Omid has a 1 litre measuring jug. It contains 100 mL of water.

He has some identical blocks. He drops two blocks into the water and they sink. The water level rises to 150 mL.

Omid drops five more blocks into the water.

What is the new water level?

A 225 mL

B 275 mL

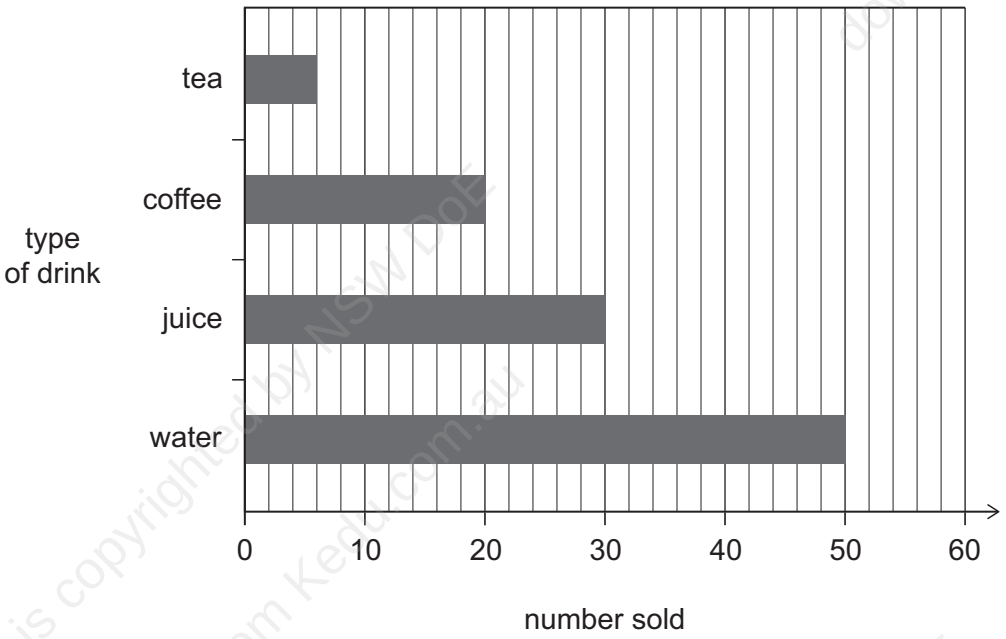
C 375 mL

D 400 mL

E 525 mL

12 A restaurant has a target to sell 150 drinks each day.

The graph shows how many drinks they have sold so far today.



How many more drinks do they need to sell to reach their target?

A 44

B 47

C 50

D 56

E 100

13 Shawn starts with the number 53 and follows this instruction five times:

- If the number you have is odd, add 1, or if it is even, divide by 2.

After following the instruction five times, what number does Shawn have?

A 4

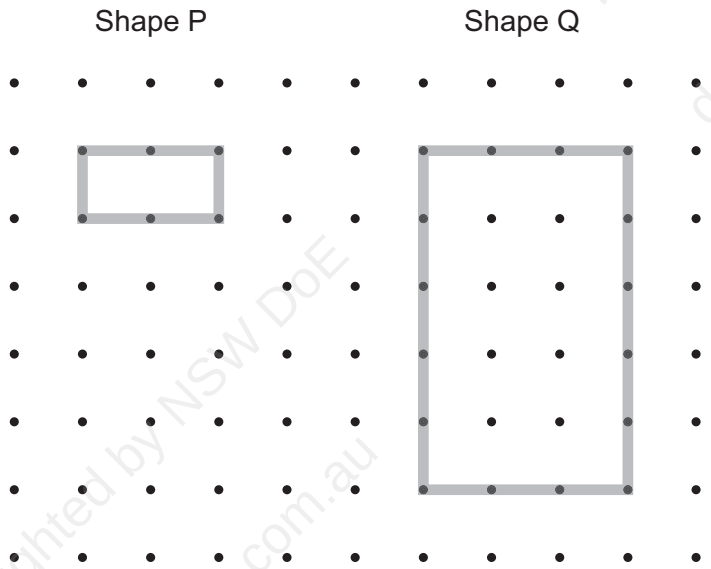
B 7

C 10

D 15

E 20

14 Shape P has an area of 2 cm².



What is the area of Shape Q?

A 8 cm²

B 10 cm²

C 15 cm²

D 16 cm²

E 24 cm²

15 Four bananas weigh the same as six apples.

A shopkeeper puts fruit into bags.

Bag 1:
10 bananas and 9 apples

Bag 2:
6 bananas and 12 apples

Bag 3:
16 bananas and 3 apples

Which one of these statements is correct?

A All three bags weigh the same.

B Bags 1 and 2 weigh the same, and bag 3 has a different weight.

C Bags 1 and 3 weigh the same, and bag 2 has a different weight.

D Bags 2 and 3 weigh the same, and bag 1 has a different weight.

E All three bags have different weights.

16 Which of these statements is/are correct?

1 All rhombuses are parallelograms.

2 All rectangles are kites.

3 All quadrilaterals are squares.

A statement 1 only

B statement 2 only

C statement 3 only

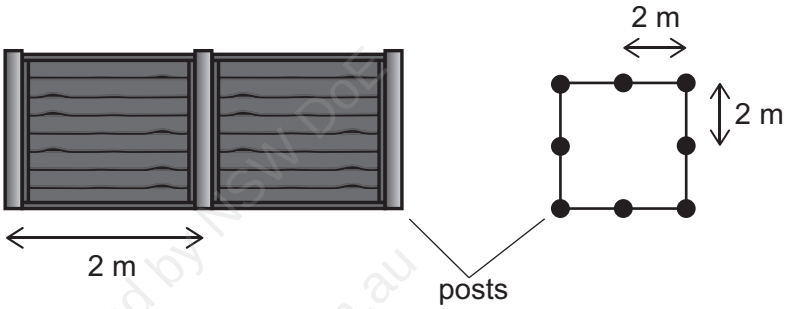
D statements 1 and 3 only

E statements 2 and 3 only

17 Selina makes fences around square pieces of land.

Each fence has posts that are 2 metres apart. There is a post at each corner of the square.

To make a square with side length 4 m, she needs 8 posts as shown in the picture.



How many posts does she need to make a square with side length 10 m?

A 16

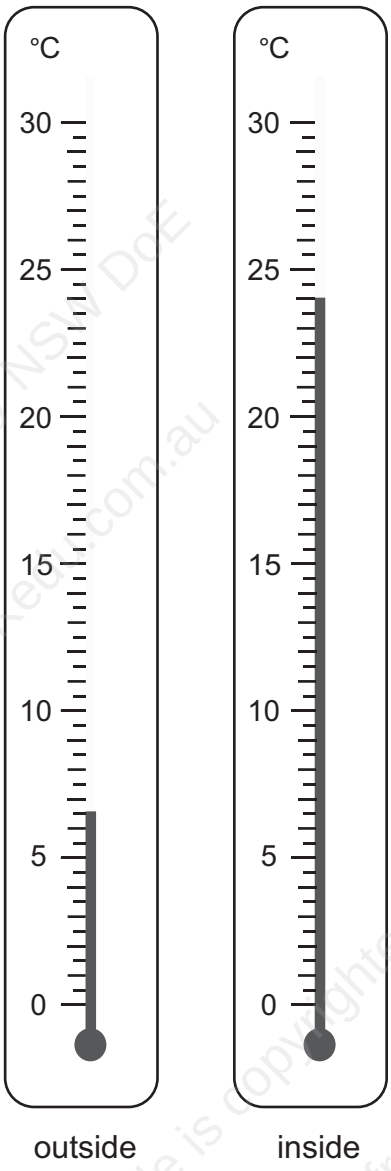
B 20

C 24

D 25

E 36

18 These thermometers show the temperature outside and inside.



What is the difference between the temperature outside and the temperature inside?

A 15 °C

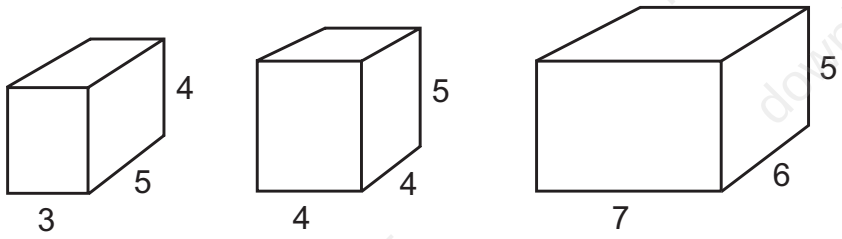
B 16 °C

C $16\frac{1}{2}$ °C

D 17 °C

E $17\frac{1}{2}$ °C

19 Jake has three different building blocks.



[diagram not to scale]

He stacks all three on top of each other in different ways.

What is the tallest stack he can make?

A 13 cm

B 14 cm

C 15 cm

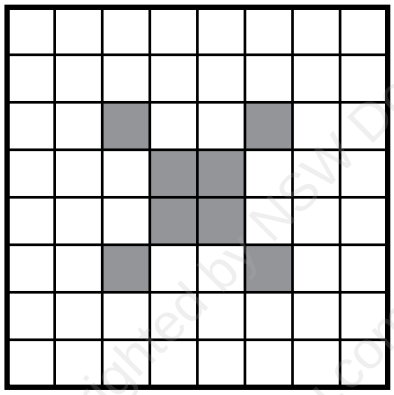
D 17 cm

E 18 cm

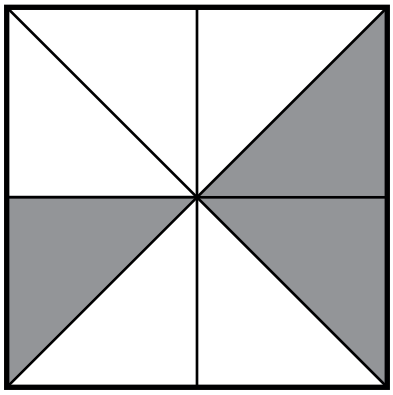
20 Myo has two identical squares, X and Y.

She divides square X into 64 equal-sized small squares.
She divides square Y into 8 equal-sized triangles.

She shades some squares on X and some triangles on Y, as shown.



square X



square Y

How many **more** small squares must Myo shade on X so that the same area is shaded on both diagrams?

A 5

B 8

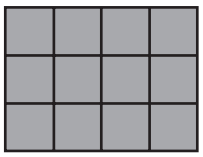
C 16

D 22

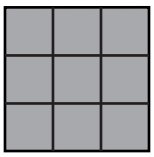
E 24

21 Fran has one each of the shapes below, which she can move and rotate.

shape A



shape B

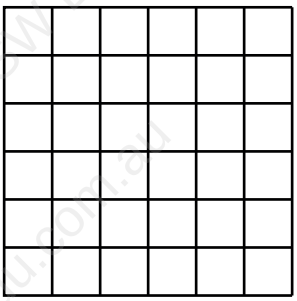


shape C

shape D

shape E

She has an empty 6 by 6 grid.



Fran realises she can cover the grid exactly using four of these shapes, with no shapes overlapping.

Which shape is not used?

A shape A

B shape B

C shape C

D shape D

E shape E

22 The sum of the six number cards below is 25.

 and represent two whole numbers that are greater than zero.

What is the largest possible difference between  and  ?

A 0

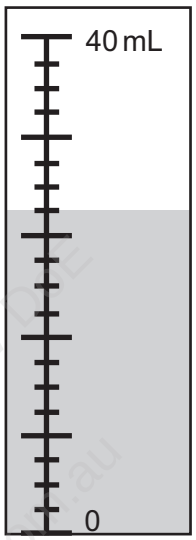
B 2

C 3

D 4

E 6

23 Birrani is measuring water in a container. This container has an unusual scale.



What is the volume of water Birrani has?

A 24 mL

B 25 mL

C 26 mL

D 28 mL

E 32 mL

24 Hayden follows these instructions:

- Choose a starting number.
- Add 4 to your number.
- Multiply by 2.

He gets the answer 40.

What do you get if you add together the digits in his starting number?

A 6

B 7

C 9

D 12

E 15

25 The children in a class are making up a new type of money. They decide that:

- 9 squigs are worth 2 zots
- 3 zots are worth 5 grozzles

How many squigs are 20 grozzles worth?

A 24 squigs

B 36 squigs

C 54 squigs

D 108 squigs

E 150 squigs

26 20 boxes are going to be packed into bags.

Each box has a mass of 400 grams.

Each bag can hold a mass of up to 1.5 kilograms.

What is the smallest number of bags needed to pack all the boxes?

A 3

B 5

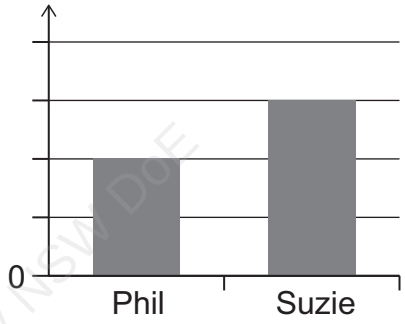
C 6

D 7

E 10

27 The column graph shows the number of car tyres replaced by two mechanics, Phil and Suzie, in one day.

The scale is missing from the graph.



The picture graph shows the number of tyres replaced by Phil.

The pictures for Suzie are missing.

mechanic	number of car tyres replaced
Phil	
Suzie	

key: = 4 tyres

= 3 tyres

= 2 tyres

= 1 tyre

What should the picture graph show for Suzie?

A

B

C

D

E

28 Six children are going to play in a tennis tournament.

Each child will play every other child once.

How many matches will there be in total?

A 15

B 18

C 21

D 30

E 36

29 Here is part of a number line.

The arrow represents one jump.

Starting from 9, what value will be reached on the number line after 11 of these jumps?

A $6\frac{1}{4}$

B $6\frac{1}{2}$

C $6\frac{3}{4}$

D $7\frac{1}{4}$

E $7\frac{3}{4}$

30 Here is a bus timetable:

	Forster to Coffs Harbour	
Forster	7:00 am	8:50 am
Wauchope	8:48 am	10:38 am
Kempsey	9:58 am	11:48 am
Coffs Harbour	11:49 am	1:39 pm

	Coffs Harbour to Forster	
Coffs Harbour	2:39 pm	4:25 pm
Kempsey	4:40 pm	6:26 pm
Wauchope	5:53 pm	7:39 pm
Forster	7:33 pm	9:19 pm

Sarah and her friends live in Forster and take the 8:50 am bus to Coffs Harbour. They stay in Coffs Harbour until they get a bus home, arriving in Forster at 9:19 pm that evening.

How long do they spend at Coffs Harbour?

A 2 hours 46 minutes

B 3 hours 14 minutes

C 3 hours 26 minutes

D 4 hours 36 minutes

E 7 hours 40 minutes

31 Brian and Yarram are collecting cards.

Altogether they have 250 cards, but Yarram has 18 more than Brian.

How many cards does Yarram have?

A 107

B 116

C 134

D 143

E 152

32 In a restaurant, the same amount of vegetables need to be chopped every day.

Romesh chops the vegetables on a Thursday. If he starts at 8:45 am and works as quickly as he can, he finishes at 9:25 am.

Lucinda chops the vegetables on a Friday. If she starts at 8:25 am and works as quickly as she can, she finishes at 9:05 am.

They both chop the vegetables on a Saturday. If they start at 8:35 am and work as quickly as they can, what time will they finish?

A 8:55 am

B 9:05 am

C 9:15 am

D 9:25 am

E 9:55 am

33 Cho saves money by putting it in a money box.

At the start of Monday, the box is empty.

At the end of Monday, the box contains $12.
At the end of Wednesday, the box contains $30.
At the end of Friday, the box contains $80.

She puts in the same amount of money on each of Tuesday, Wednesday and Friday.

How much money does she put in on Thursday?

A $25

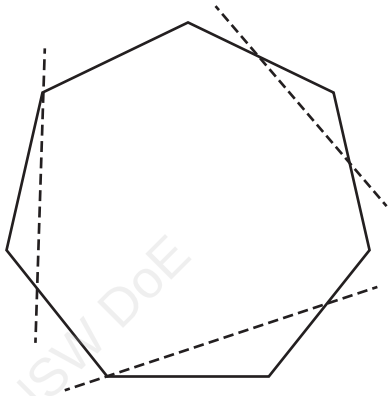
B $29

C $32

D $39

E $41

34 The diagram shows a 7-sided shape.



It is cut along the three dashed lines shown. This makes four pieces: three triangles and one other shape.

How many sides do the four pieces have in total?

A 11

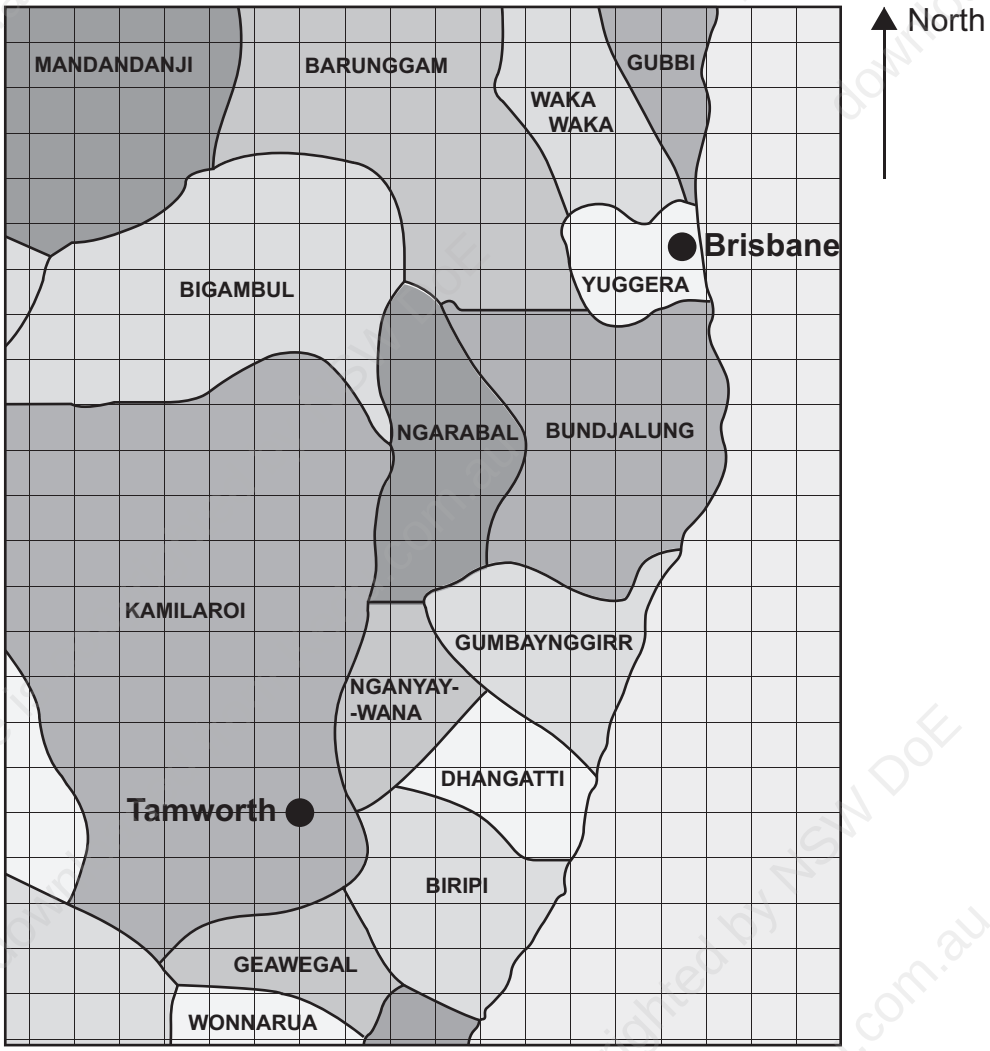
B 13

C 14

D 16

E 17

35 The map shows some of the Aboriginal regions of eastern Australia.



Shuyi plans a route from Tamworth to Brisbane. On her route she only travels north or east. She can make as many turns as she wants, but always travels north or east.

What is the greatest number of different regions she could pass through? (Do not include Kamilaroi or Yuggera.)

A 3

B 5

C 6

D 7

E 8

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