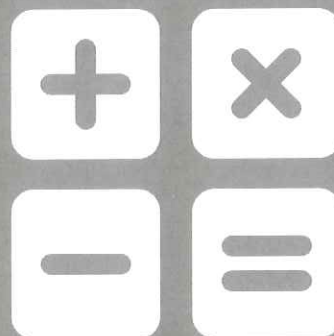UNSW Global

THE UNIVERSITY OF NEW SOUTH WALES

SYDNEY • AUSTRALIA

PAPER
D

2010
ICAS

International Competitions
and Assessments for Schools

MATHEMATICS

**Educational
Assessment
Australia**
eaa.unsw.edu.au

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

40 QUESTIONS

TIME ALLOWED: 1 HOUR

STUDENT'S NAME:

Read the instructions on the **ANSWER SHEET** and fill in your
NAME, SCHOOL and **OTHER INFORMATION**.
Use a 2B or B pencil.
Do **NOT** use a pen.
Rub out any mistakes completely.

You **MUST** record your answers on the **ANSWER SHEET**.

Mark only **ONE** answer for each question.
Your score will be the number of correct answers.
Marks are **NOT** deducted for incorrect answers.

There are **35 MULTIPLE-CHOICE QUESTIONS** (1–35).
Use the information provided to choose the **BEST** answer from
the four possible options.
On your **ANSWER SHEET** fill in the oval that matches your answer.

There are **5 FREE-RESPONSE QUESTIONS** (36–40).
Write your answer in the boxes provided on the **ANSWER SHEET**
and fill in the ovals that match your answer.

You may use a ruler and spare paper.
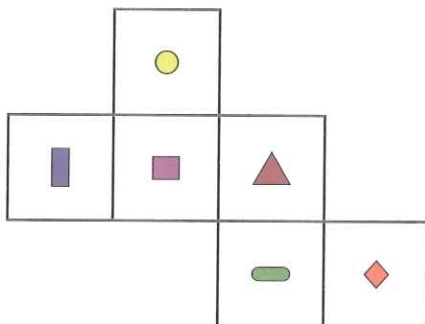You are **NOT** allowed to use a calculator.

1. What is 3487 to the nearest thousand?

   (A) 3000
   (B) 3490
   (C) 3500
   (D) 4000

2. $7.35 - 5.85 =$ ❓

   (A) 1.20   (B) 1.50

   (C) 2.00   (D) 2.50

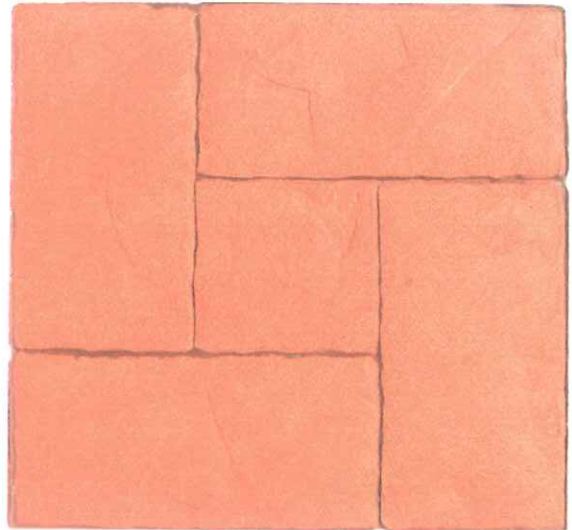3. Look at the figure below.

   The figure can be folded to make a cube with the pictures on the outside.

   Which shape will be on the face opposite the one with ⬤ on it?

   (A) ▌
   (B) ▲
   (C) ◆
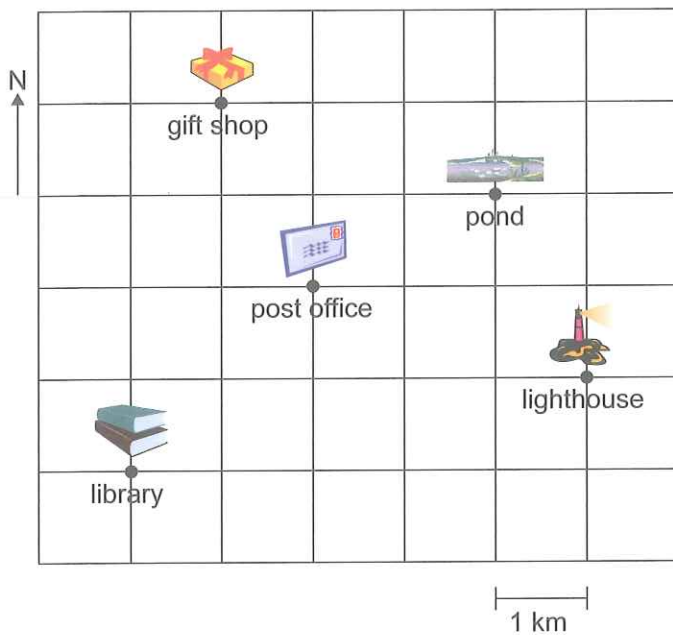   (D) ▬

4. The picture shows five tiles.

   The square tile in the middle has an area of 100 cm².

   What is the total area of the five tiles?

   (A) 450 cm²   (B) 500 cm²

   (C) 800 cm²   (D) 900 cm²

5. The grid shows the location of some places in a town.

gift shop
pond
post office
lighthouse
library

|— 1 km —|

Adam is at the post office. He walks two kilometres west and one kilometre south.

Which of these best describes his new position?

(A) one kilometre north of the library
(B) two kilometres south of the pond
(C) one kilometre east of the lighthouse
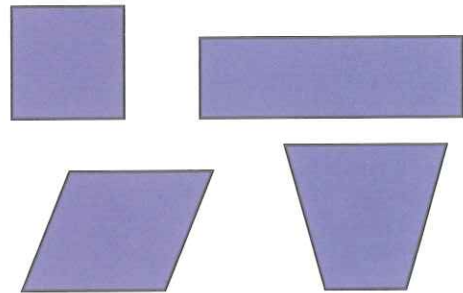(D) three kilometres south of the gift shop

6. What is the missing number in this number pattern?

7 16 41
2   9   ?   66

(A) 24
(B) 25
(C) 34
(D) 35

7. $4 \times 8 + 3 = \boxed{?} - 19$

(A) 16
(B) 24
(C) 35
(D) 54
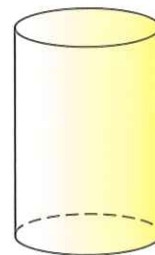
8. Here are some shapes.

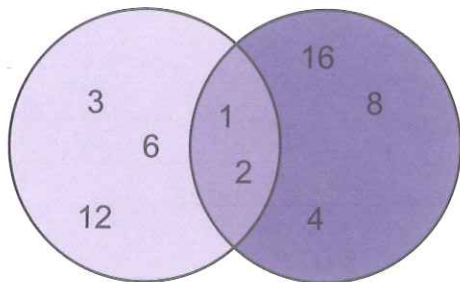How many of these shapes are parallelograms?

(A) 1
(B) 2
(C) 3
(D) 4

9. Manling uses cubic metres to measure the volume of a cylinder.

What unit will she use to measure the area of the net of the cylinder?

(A) metres
(B) cubic metres
(C) square metres
(D) cubic centimetres

10. Sunil used the following diagram to represent the factors of the numbers 12 and 16.

Which number is in the wrong place?

(A)   1
(B)   2
(C)   4
(D)   12

11. Adam, Sunil and Luisa went fishing. This graph shows how many fish each person caught.

Sunil caught three more fish than Adam.

How many fish did Luisa catch?

(A)   15
(B)   10
(C)   6
(D)   5

12. This sign post is on a path.
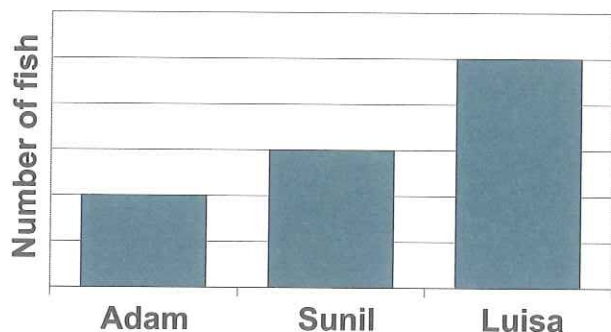

The sign to The 'Knoll' is pointing east.

In which direction is the sign to Lower Falls pointing?

(A)   north   (B)   south

(C)   east   (D)   west

13. The average height of students in a class is 130 centimetres (cm). Adam, Luisa, Sunil and Noor are students in this class. Their heights are given in the table.
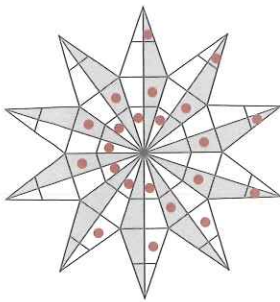
Student	Height (cm)
Adam	120
Luisa	125
Sunil	130
Noor	145

One of these students is leaving school. As a result, the average height of this class will go down.
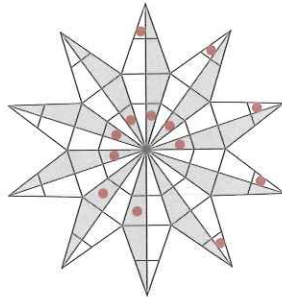
Who is leaving school?

(A)   Adam
(B)   Luisa
(C)   Sunil
(D)   Noor

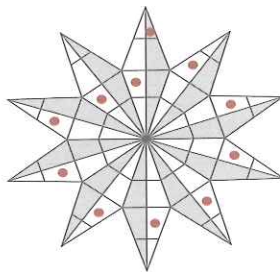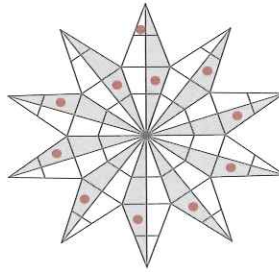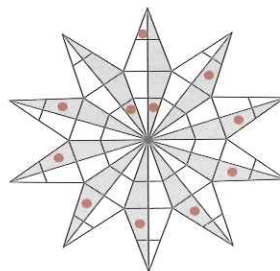14. The pictures show how Luisa represents numbers.

4387

5026

Using Luisa's representation, how should the number 1820 be represented?
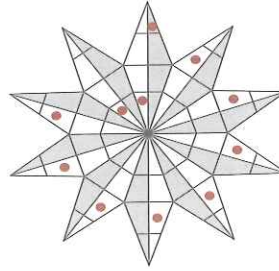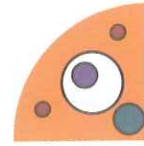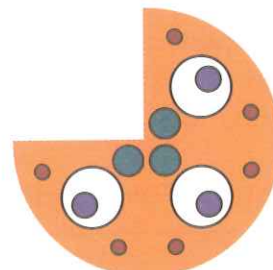

(A)

(B)

(C)

(D)

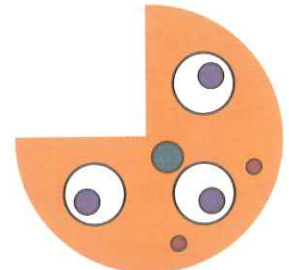15. This picture shows one quarter of a design.

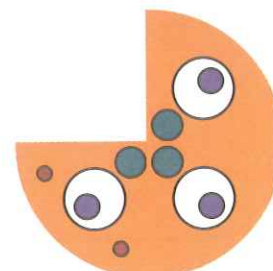The design has only two lines of symmetry.

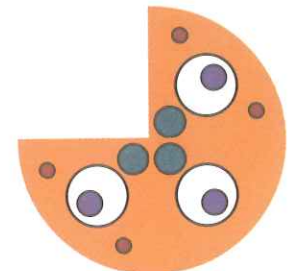Which of these could be the other three quarters of the design?
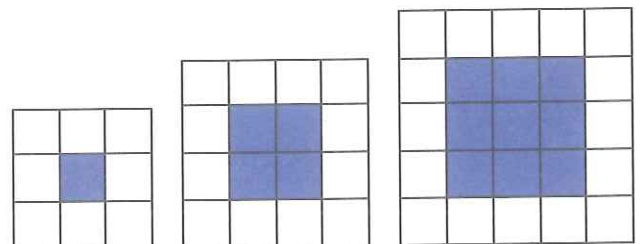

(A)

(B)

(C)

(D)

16. The figures show the start of a pattern using blue and white tiles.

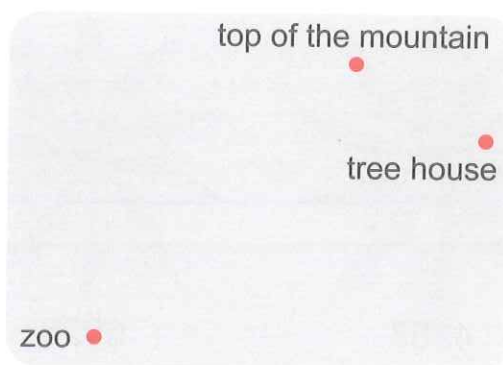Based on this pattern, how many white tiles would be needed for a figure with 25 blue tiles?

(A)   20
(B)   24
(C)   36
(D)   49

17. The time in Sydney is 3 hours ahead of the time in Singapore. The time in Singapore is 5 hours behind the time in Auckland.

What is the time in Auckland if it is 11 pm in Sydney?

(A) 9 pm
(B) 3 pm
(C) 7 am
(D) 1 am

18. The amount of money spent by a school on sports last year was divided between five sports as shown on the sector graph.

Proportion of Money Spent on Five Sports

KEY
- cricket
- swimming
- tennis
- baseball
- football
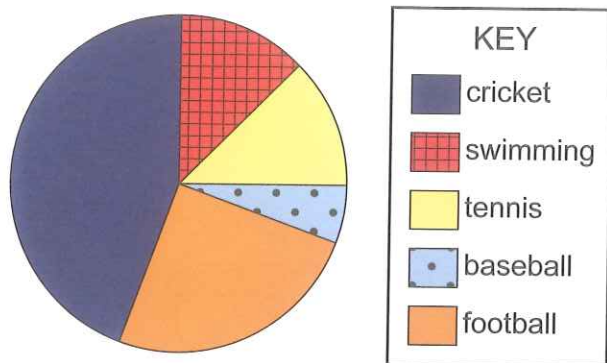
$175 was spent on tennis last year.

About how much in total was spent on sports last year?

(A) $350
(B) $700
(C) $1050
(D) $1400

19. Based on the map below, the tree house is 5 kilometres from the top of the mountain.

How far is the zoo from the top of the mountain, in kilometres?

(A) 14.5
(B) 12.5
(C) 11
(D) 5

20. If you can rotate a shape around a centre point by fewer than 360 degrees and the shape fits exactly onto itself, then the shape has rotational symmetry.

The smallest angle you need to rotate the shape is called the angle of rotation.

Adam drew a shape.
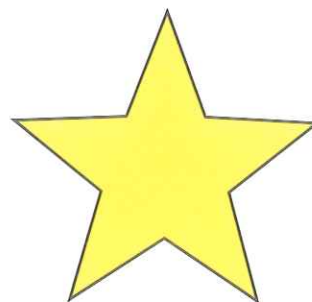
What is the approximate angle of rotation for Adam's shape?

(A) 40 degrees
(B) 60 degrees
(C) 70 degrees
(D) 120 degrees

21. This is part of a train timetable:

| Station	pm	pm	pm
Springtown	3.19	4.05	4.38
Tetrahedron	3.22	4.08	- - -
Bravo	3.26	4.12	- - -
Mirrorland	3.30	4.16	4.47
Berrybrook	3.35	4.21	4.52
Rockstone	3.39	4.25	- - -
Rainbow	3.48	4.34	- - -
Coffeehill	3.52	4.38	5.08
Queenswood	- - -	- - -	- - -
Blue Lake	- - -	- - -	- - -
Green Mount	- - -	- - -	- - -
Valley	4.07	4.53	- - -
Nine Hills	- - -	- - -	- - -
Compass Point	- - -	5.01	- - -
All Good	4.17	5.05	5.31
Square 1	4.19	5.07	- - -
Hill Number	- - -	- - -	- - -
Division	4.30	5.18	5.43
Square 2	- - -	- - -	- - -
Central	4.43	5.31	5.56

The Simons family wants to travel from Springtown to Central. They worked out that if they catch the 4:05 pm train, it will be a longer trip than if they catch the 4:38 pm train.

By how much will the trip be longer?

(A)   8 minutes
(B)   25 minutes
(C)   1 hour 18 minutes
(D)   1 hour 26 minutes

22. What number comes next in this pattern?

1   5   13   25   41
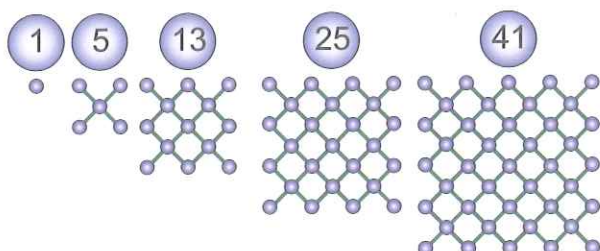
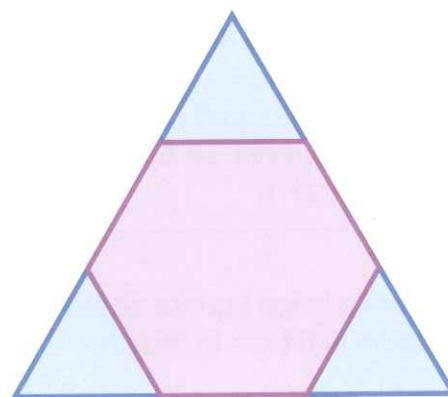(A)   36   (B)   57

(C)   61   (D)   73

23. Manling has some paper clips in a box.

Manling finds out that she needs 10 more paper clips to make either groups of three or groups of four or groups of five with no paper clips left over.

Which of the following could be the number of paper clips she has in the box?

(A)   20
(B)   50
(C)   60
(D)   70

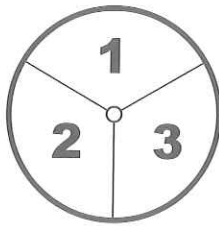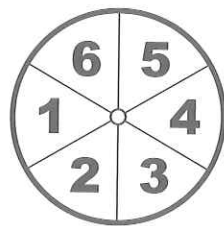24. A hexagon has been placed on top of an equilateral triangle.

What fraction of the area of the triangle is covered by the hexagon?

(A) $\frac{1}{3}$ (B) $\frac{1}{2}$

(C) $\frac{3}{4}$ (D) $\frac{2}{3}$

25. Adam has two spinners, X and Y.
Spinner X has three equal sections.
Spinner Y has six equal sections.

Spinner X   Spinner Y

Which statement is correct?

(A)   Adam is more likely to score 3 on
       Spinner Y than on Spinner X.
(B)   Adam will always score higher on
       Spinner Y than on Spinner X.
(C)   Adam is more likely to score
       less than 3 on Spinner X than on
       Spinner Y.
(D)   Adam is equally likely to score an
       odd number on Spinner X and on
       Spinner Y.

26. Sunil has a large square sheet of paper.
Each side is 64 cm in length.

He cuts out a square that has an area
that is a quarter of the area of the sheet of
paper.

What is the perimeter of the smaller
square?

(A)   16 cm
(B)   32 cm
(C)   64 cm
(D)   128 cm

27. Luisa made a rainbow. She drew eight
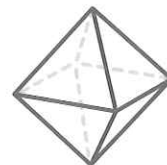semicircles. Then she coloured between
the semicircles as shown below.
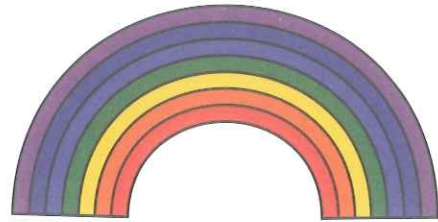
The smallest semicircle has a diameter of
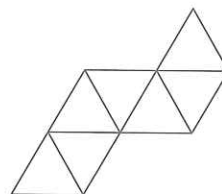10 cm. The semicircles are 0.6 cm apart.

What is the diameter of the largest
semicircle?

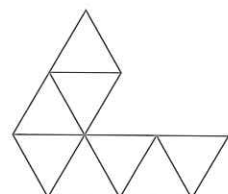(A)   14.2 cm
(B)   14.8 cm
(C)   18.4 cm
(D)   28.4 cm

28. An octahedron is a 3D shape with eight
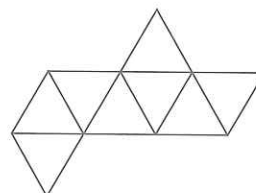faces.

Which of these is a net of an octahedron?
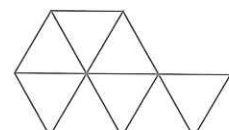

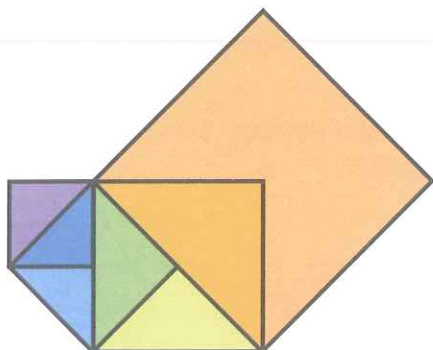(A)   (B)

(C)   (D)

29. Noor drew a small square. Using its diagonal, she drew a larger square. Using the diagonal of this new square, she drew another square. She repeated this again to draw the largest square seen in the shape below.

The area of the smallest square is 16 cm².

What is the area of the whole shape, in cm²?

(A)   128   (B)   184

(C)   240   (D)   256

30. Between which pair of numbers is 3.67?

(A) $3\frac{17}{25}$ and 3.76

(B)   3.5 and $\frac{18}{5}$

(C) $\frac{18}{5}$ and 3.76

(D)   3 and $3\frac{13}{20}$

31. Adam sat three spelling tests and got 80% of all words correct.

Here are his results:

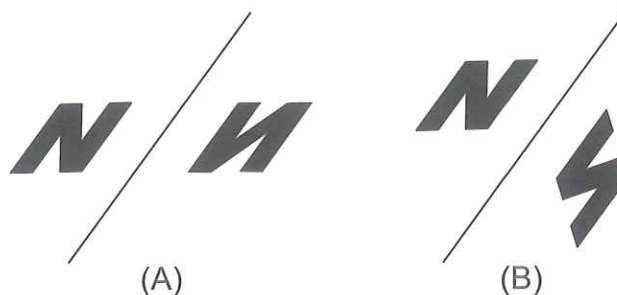| Test 1	Test 2	Test 3
$\frac{24}{30}$	$\frac{27}{30}$	$\frac{?}{30}$

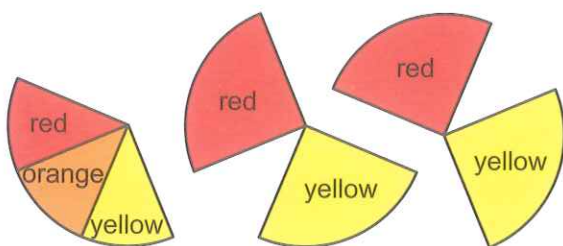How many words did Adam get correct in Test 3?

(A)   19
(B)   21
(C)   24
(D)   29

32. Which of these diagrams shows a reflection in the line?
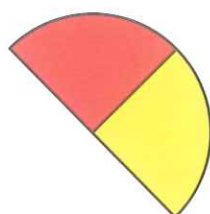

(A)

(B)

(C)

(D)

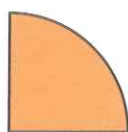33. When red overlaps with yellow, it looks orange.
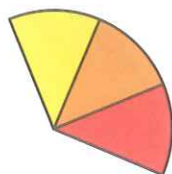
Here are the first three shapes in a pattern:
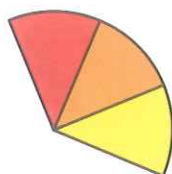

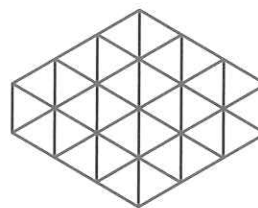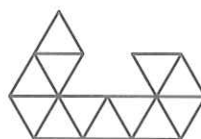What is the next shape in this pattern?

(A)

(B)

(C)

(D)

34. $0.2338 \div 0.04 = $ **?**

(A) 4.845
(B) 5.8
(C) 5.845
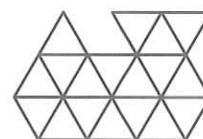(D) 5.86

35. Here is a 2D shape labelled Shape V.

Shape V
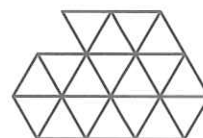
Which two shapes can fit together to make Shape V?

W

X
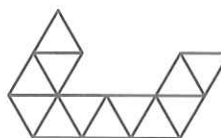
Y

Z

(A) W and X
(B) W and Z
(C) Y and X
(D) Y and Z

QUESTIONS 36 TO 40 ARE FREE RESPONSE.
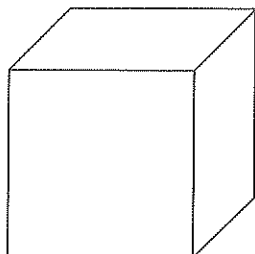
Write your answer in the boxes provided on the ANSWER SHEET and fill in the ovals that match your answer.

36. A cube measuring 50 centimetres on each edge is painted on the outside. Then it is cut into one-centimetre cubes.

NOT TO SCALE

How many one-centimetre cubes will have paint on only two faces?

37. The date for 6 June 2006 can be written as 06/06/06.

How many days were there from 02/02/02 to 03/03/03?

38. Adam has a recipe for six blueberry muffins, each with a weight of 85 g.
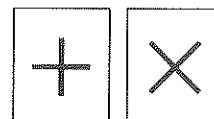
To make the muffins, he weighs two eggs and puts them in a bowl. He then adds double the weight of the two eggs in flour, half the weight of the two eggs in sugar, a quarter of the weight of the two eggs in butter and half the weight of the two eggs in blueberries.

What was the weight of the two eggs he used, in grams?

39. Manling had three number cards

3 7 9
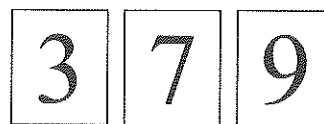
and two operation cards.

+ ×

She used all the cards to form an expression so she could calculate the largest possible number. Then she used all the cards to form another expression so she could calculate the smallest possible number.

Manling then subtracted the smallest number from the largest number.

What result should Manling get?

40. Noor is packing chocolates into boxes. The boxes come in small, medium and large sizes.

A large box holds twice as many chocolates as a medium box and three times as many chocolates as a small box.

Noor fills three times as many small boxes as medium boxes and twice as many medium boxes as large boxes.
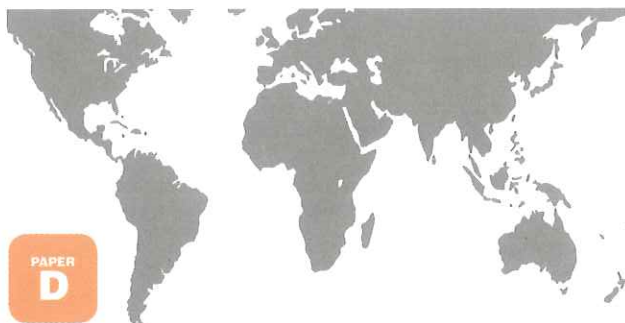
Altogether she packs 1296 chocolates.

In total, how many chocolates does she pack into the small boxes.

The following year levels should sit THIS Paper:

Australia	Year 6
Brunei	Primary 6
Indonesia	Year 7
Malaysia	Standard 6
New Zealand	Year 7
Pacific	Year 6
Singapore	Primary 5
South Africa	Grade 6

PAPER
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