UNSW Global | Assessments

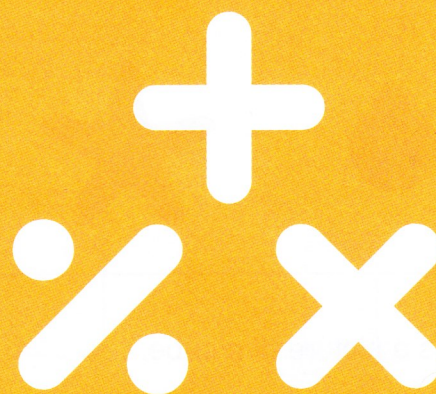## PAPER D

2018 MATHEMATICS

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

40 QUESTIONS

TIME ALLOWED: 1 HOUR

STUDENT'S NAME:

ICAS

1. Which picture has more than one axis of symmetry?

(A)

(B)

(C)

(D)

2. This is a picture of a cube.

1 cm

Which of these units could be used to record its volume?

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

3. Ben started shading some numbers on this chart by following a pattern.

21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

What will be the largest number Ben shades if he continues this pattern?

(A)   46   (B)   47
(C)   49   (D)   50

4. A plane drops 10 food parcels at equal intervals over a distance of 3 kilometres.

About how many metres is it between one parcel and the next?

(A)   3
(B)   30
(C)   300
(D)   3000

5. This map shows the paths in a park.
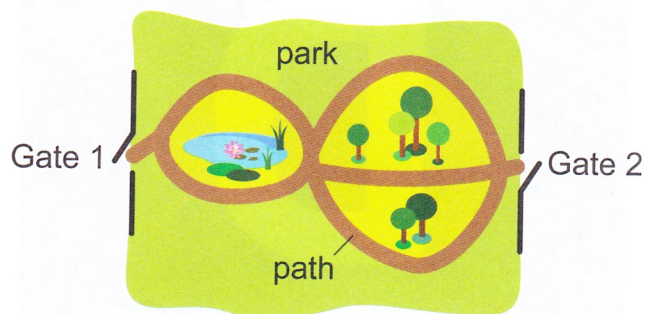
How many different ways are there to walk along the paths from Gate 1 to Gate 2 without heading back towards Gate 1?

(A)   6
(B)   5
(C)   4
(D)   3

6. Which of the following expressions is **NOT** equal to 276?

(A)   100 + 50 + 50 + 25 + 25 + 25 + 1
(B)   100 + 100 + 100 − 10 − 10 − 6
(C)   100 + 100 + 50 + 20 + 6
(D)   300 − 20 − 4

7. Troy drew this triangle.

He enlarged it by a factor of 2.
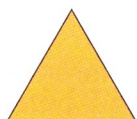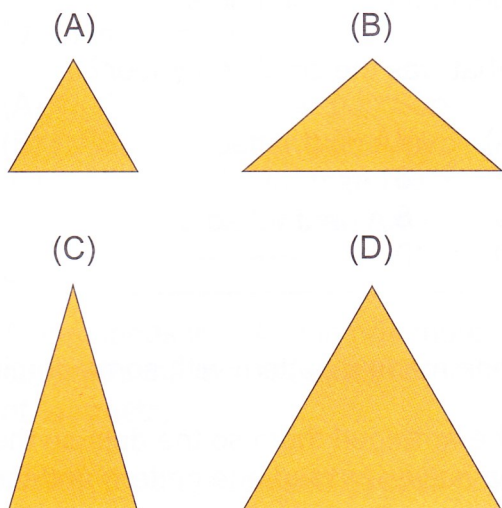
Which is Troy's enlarged triangle?

(A)

(B)

(C)

(D)

8. Jamie is using this recipe to cook pumpkin soup.

PUMPKIN SOUP

Serves 15

Ingredients

Pumpkin   2100 grams
Beef stock   1800 millilitres

Jamie is cooking for 5 people.

How much pumpkin should he use?

(A)   420 grams
(B)   600 grams
(C)   650 grams
(D)   700 grams

9. Sam has 800 millilitres (mL) of water. He divides all of this water equally into 4 cylindrical jars.

Which jar has a capacity of 200 mL?

(A)   (B)

(C)   (D)
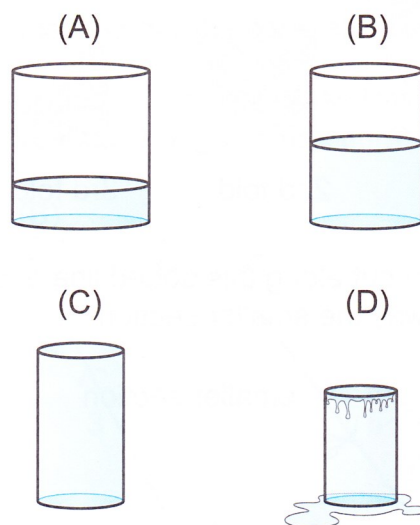
10. Min picks up one of these pegs without looking.
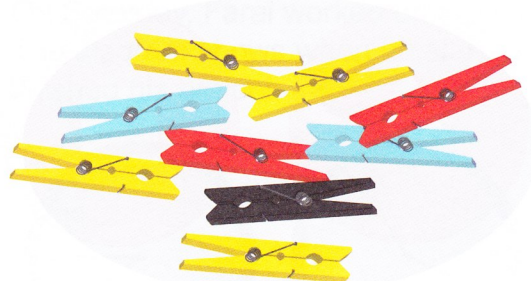
KEY		
yellow	red
blue	black

Which statement is true?

(A)   Min is certain to pick up a yellow peg.
(B)   Min has the same chance of picking up a blue peg as a red peg.
(C)   It is impossible for Min to pick a red peg.
(D)   Min is likely to pick up a black peg.

11. Sue took a circular piece of paper and folded it in half three times.

1st fold   2nd fold   3rd fold

She then cut along this dotted line and threw away the smaller section.
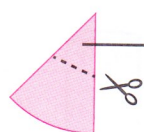
— smaller section

Sue unfolded the remaining piece.

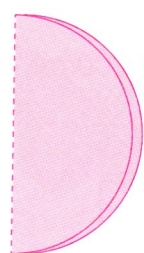Which of these is the shape of the remaining piece?

(A)

(B)

(C)

(D)
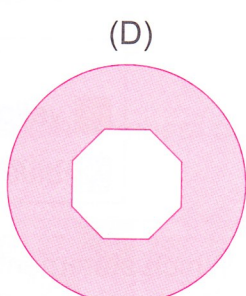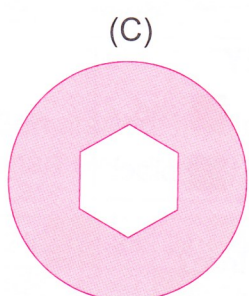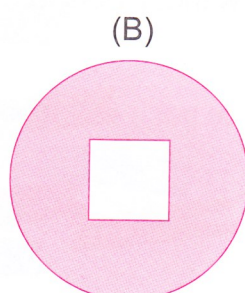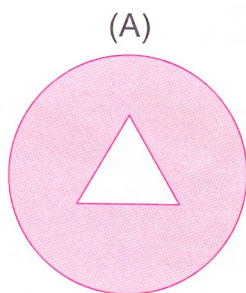
12. Romesh wrote down the number 12 and a smaller number.

He found the difference between these two numbers.

Romesh then doubled this difference.

This answer was the same as the sum of the two numbers.

What was the smaller number?

(A)   4
(B)   6
(C)   8
(D)   10

13. Jane made a pattern with some dominoes.

She arranged them so the dots on the top halves formed one pattern and the dots on the bottom halves formed another pattern.
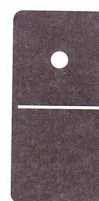
domino 1   domino 2   domino 3

Which is the next domino in the pattern?

(A)   (B)   (C)   (D)

14. Four students compared their results in a music exam. All 30 questions were worth 1 mark each.

- Sue answered 3 out of every 5 questions correctly.
- Amy's score rounded to 63%.
- Jim made 12 errors.
- Peter answered 20 correctly.

Which statement is true?

(A) Peter did better than Sue.
(B) Sue did better than Amy.
(C) Amy did better than Peter.
(D) Jim did better than Amy.

15. Alana needs to colour in one more square to make a shape with one line of symmetry.

Which square does she need to colour in?
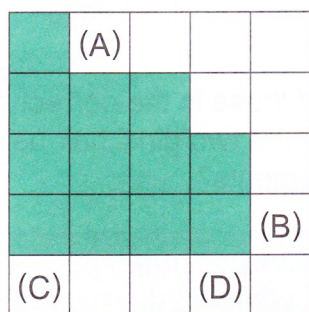
16. James was at a theme park.
He was 300 metres from the Pirate Ship.

James

Giant Slide

Pirate Ship
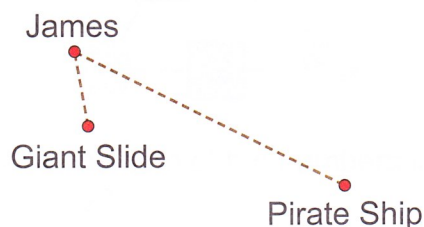
Using this map, approximately how far was James from the Giant Slide?

(A) 125 metres
(B) 100 metres
(C) 75 metres
(D) 50 metres

17. Pamela is in a race.

There are four cones at A, B, C and D.

Pamela starts next to the cone at A, follows the arrows on the diagram and finishes near the cone at D.

Around which cone does Pamela make the greatest change in direction?

(B)

4

(C)

3

5

start   1   finish

(A)   2   (D)
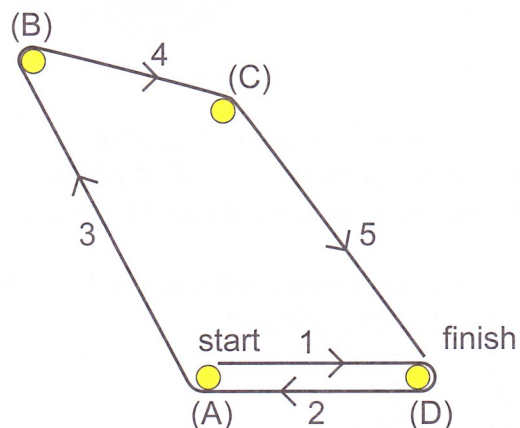
18. On Saturday, Farai worked on a project. The diagram shows when he started and finished his project.

START   FINISH
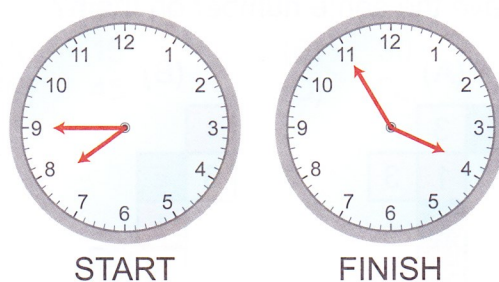
He took a break for lunch lasting one hour and twenty-five minutes.

How long did Farai actually work on his project?

(A) six hours and forty-five minutes
(B) seven hours and fifteen minutes
(C) seven hours and forty-five minutes
(D) eight hours and ten minutes

19. Mr Tin's class is selling cordial at a fair.

Cordial

50c
per cup

They have 7 jugs full of cordial.
Each jug of cordial can fill 4 bottles.
Each bottle of cordial can fill 8 cups.

How much money will they collect if they sell all of the cordial?

(A) $44
(B) $88
(C) $112
(D) $224

20. Which of these nets can be used to make a cube where adjoining faces do **NOT** have the same number on them?

(A)

2	3	
	1	3
	2	
	1	

(B)

	1	
3	2	
	1	
	3	2

(C)

	3		
2	1		
	3	1	
	2		

(D)

3	1	
	2	
	1	3
	2	
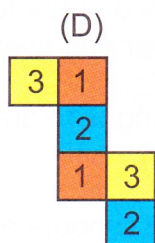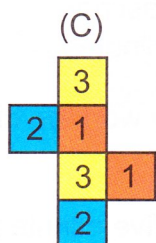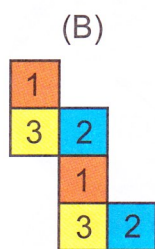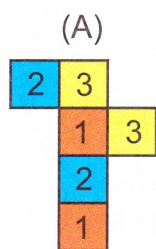
21. Lisa and Alana are tying their hair.

Lisa braids her hair.

Her braid is 247 millimetres (mm) long.

247 mm
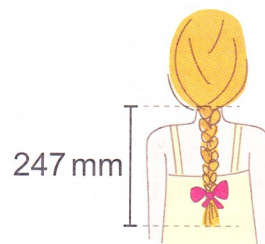
Alana ties her hair in a ponytail.

Her ponytail is 32.4 centimetres (cm) long.

32.4 cm
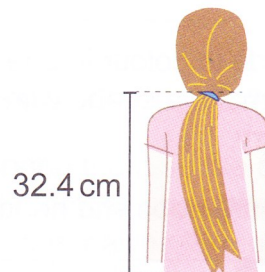
Which of these is the correct comparison between the two girls' hair using the given measurements?

	Longer hair when tied	Difference in length
(A)	Lisa	77 mm
(B)	Alana	7.7 cm
(C)	Lisa	21.5 cm
(D)	Alana	123 mm

22. Jim invited everyone in his class to his party.

He set up 4 games.

doughnut dangle suck it up
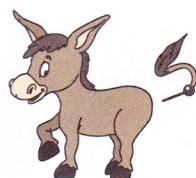
apple bob pin on the tail

Everyone had to choose exactly two different games to play.

How many different groups of two games were possible?

(A) 2
(B) 4
(C) 6
(D) 8

23. The number in each square is equal to the sum of the numbers in the circles joined to the square.
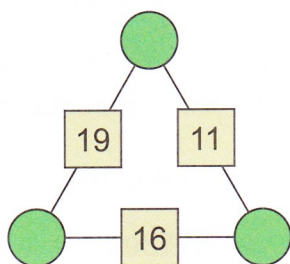
What is the sum of the numbers in the circles?

(A) 17
(B) 23
(C) 24
(D) 46

24. Millie bought 15 jars for her homemade jam. The shop charged $8 for the first 4 jars and a lower fixed price for each jar after that.

Number of jars	5	6	8	15
Cost	$9.50	$11	$14	?

How much did Millie pay for 15 jars?

(A) $24.50
(B) $25
(C) $28.50
(D) $29

25. The school sports organiser ordered 15 buses to transport 750 students to the carnival.

There were 2 supervising teachers on each bus.

Each bus had seats for 53 passengers.

How many spare seats were there altogether?

(A) 15   (B) 30
(C) 45   (D) 75

26. The local council allocated this piece of land for a netball park.

100 metres

Netball park — 100 metres
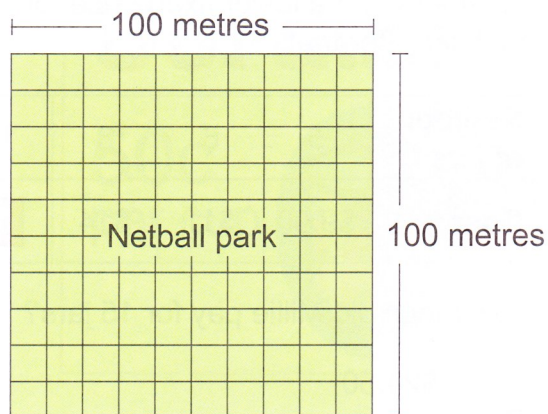
The required area for each netball court, including the space around it, is 35 metres by 20 metres.

What is the largest number of netball courts that will fit in the park?

(A)   10   (B)   12
(C)   14   (D)   15

27. This is a pallet. It has a mass of 25 kilograms (kg).
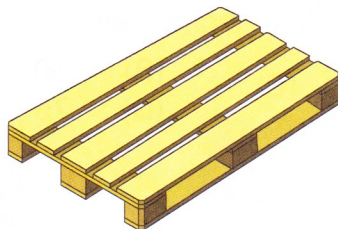
Fiona places 150 tiles on the pallet.

A stack of 4 tiles has a mass of 5 kg.

What is the total mass of the pallet and the tiles?

(A)   775 kg   (B)   212.5 kg
(C)   187.5 kg   (D)   145 kg

28. Sally boards a ferry at Daisy Bay at 11:12 am.

The ferry departs 10 minutes later and stops for 8 minutes at each of the wharves along the route before arriving at Grevillea Cove at 1:05 pm.

Riverview

Lookout Point

Bridge View

Grevillea Cove

KEY
● Ferry wharf
— Ferry route

Daisy Bay
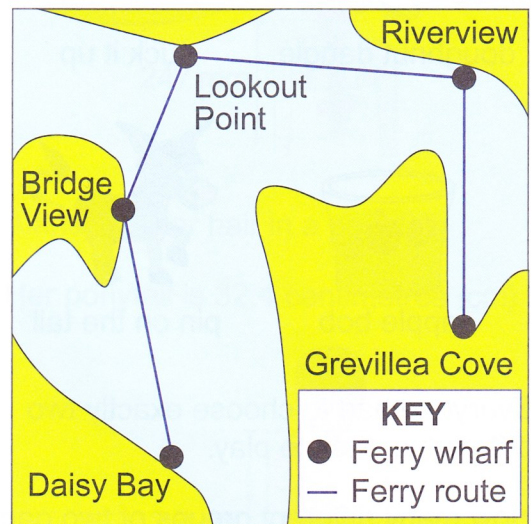
How long was Sally's ferry ride not counting the time spent at wharves?

(A)   79 minutes
(B)   93 minutes
(C)   103 minutes
(D)   119 minutes

29. Ben collected data on the vehicles at a used car lot and graphed his results.
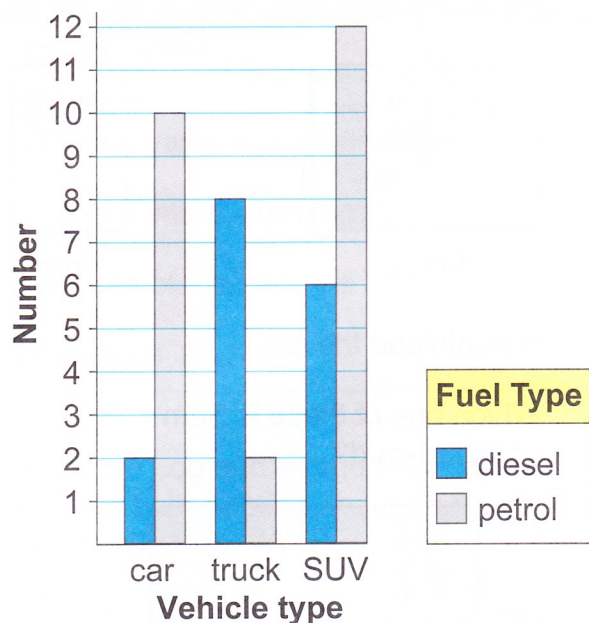
Which statement about the vehicles in the car lot is **NOT** true?

(A)   He collected data on 40 vehicles.
(B)   One-fifth of the cars use diesel.
(C)   One-third of the SUVs use diesel.
(D)   Two-fifths of the vehicles use diesel.

30. Zac's phone number has nine digits.

The sum of the digits is 49.

All of the digits are odd numbers and one digit appears exactly three times.

Zac wrote down the first six digits.

995773

Which digit appears three times in Zac's phone number?

(A)   3
(B)   5
(C)   7
(D)   9

31. Adam is making a pattern of shapes.

shape 1   shape 2   shape 3
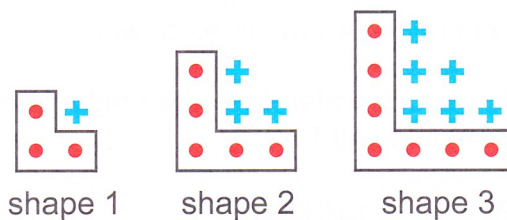
What should be the total number of spots and crosses in shape 6?

(A)   34   (B)   32
(C)   28   (D)   26

32. Tina is solving a puzzle.
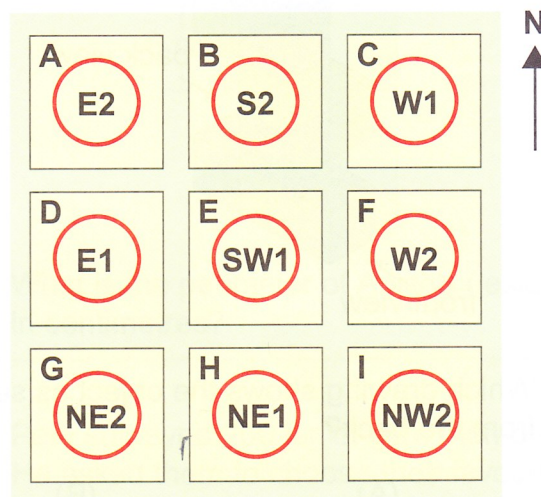
She must choose a starting point and then follow the directions in each square.

For example, in square G, 'NE2' means jump to the 2nd square north-east of G.

Tina must land on each square only once.

On which square must Tina start?

(A)   D   (B)   F
(C)   G   (D)   I

33. A drink bottle is $\frac{3}{8}$ full.

It contains 240 millilitres of water.

How much water does the bottle contain when it is half-full?

(A)   90 millilitres
(B)   120 millilitres
(C)   320 millilitres
(D)   640 millilitres

34. The object below is made with 5 blue cubes and 4 green cubes.

back view

front view
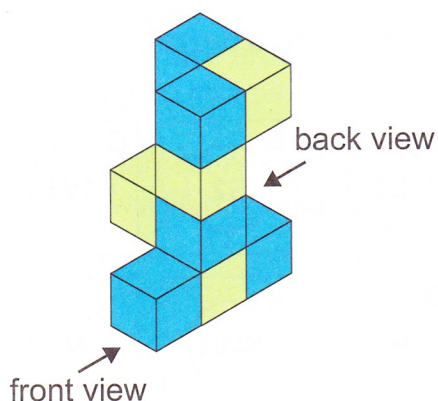
Which drawing shows the object as seen from the back?

(A)

(B)

(C)

(D)
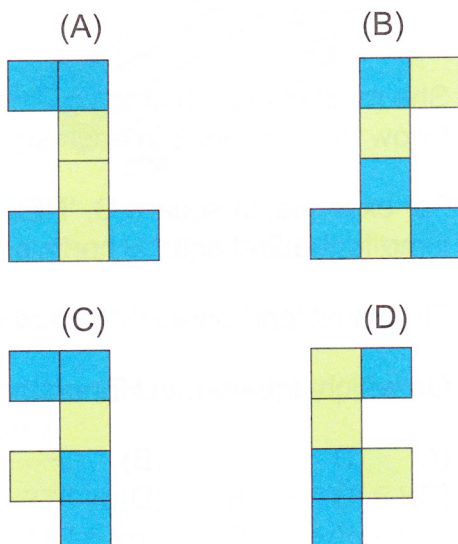
35. Sam folded a rectangular piece of paper in quarters to make this birthday card.

Fold line   Fold lines

Inside   Front
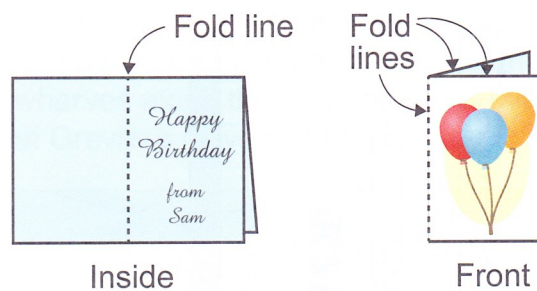
He unfolded the card.

Which one of these is Sam's unfolded card?

(A)

(B)

(C)

(D)
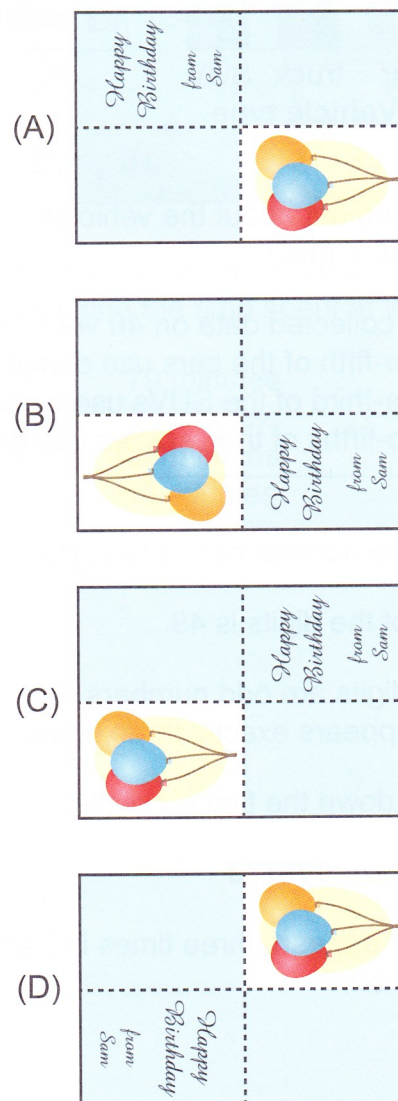
QUESTIONS 36 TO 40 ARE FREE RESPONSE.

Write your answer in the boxes provided on the ANSWER SHEET and fill in the ovals that match your answer.

36. Tina, Abby and Sue are sisters.

    Tina is 5 years older than Abby.

    Tina is 3 years older than Sue.

    The sum of their ages is 31.

    How old is Tina?

37. A square cog and a regular hexagonal cog are both rotating about a common centre, O.
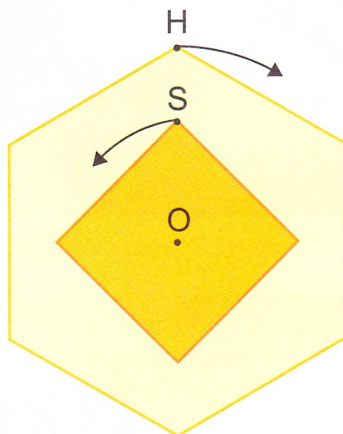
    At each click, the hexagon rotates 60° clockwise, and the square rotates 90° anticlockwise.

    Initially, the vertices H and S and centre O lie in the same straight line as shown.

    How many clicks does the hexagonal cog make before the vertices H and S first return together to their original position?

38. In a factory, the staff of 20 people each work a 7-hour day for 5 days per week.

    The factory operates for 45 weeks per year.

    On average, 14 minutes per worker are lost each working day due to interruptions.

    How many 7-hour days of work are lost each year due to interruptions?

39. Anish created this design using squares.

    The area of a large square is four times the area of a small square.
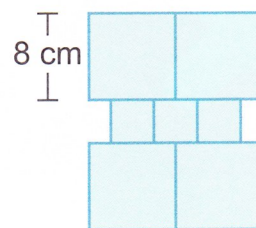
    What is the perimeter of Anish's design, in centimetres?

40. Pete surveyed 200 junior gym members. He asked them to choose their favourite class activity and personal activity from a choice of four.

		Class activity	
		Circuit	Zumba
Personal activity	Rock climbing	76	
	Treadmill		

    - 76 chose circuit and rock climbing.
    - 94 chose the Zumba class.
    - Of those who chose the treadmill, twice as many chose Zumba as chose circuit.

    How many of these junior gym members chose rock climbing?

THE FOLLOWING YEAR LEVELS SHOULD SIT THIS PAPER:

Australia	Year 6
Brunei	Primary 6
Egypt	Year 6
Hong Kong	Primary 6
Indian Subcontinent[1]	Class 6
Indonesia	Year 7
Malaysia	Standard 6
Middle East[2]	Class 6
New Zealand/Pacific[3]	Year 7
Singapore	Primary 5
Southern Africa[4]	Grade 6

PAPER D

1 Indian Subcontinent Region: India, Sri Lanka, Nepal, Bhutan and Bangladesh.
2 Middle East Region: United Arab Emirates, Qatar, Kuwait, Saudi Arabia, Bahrain, Oman, Turkey, Lebanon, Tunisia, Morocco, Libya, Algeria, Jordan and Pakistan.
3 Pacific Region: Vanuatu, Papua New Guinea and Fiji.
4 Southern Africa Region: South Africa, Botswana, Lesotho, Swaziland, Zimbabwe and Namibia.

UNSW Global

ANALYSIS BY QUESTION

The following table shows the questions you answered correctly ☑ and shades the questions that you answered incorrectly ☐. The questions are ranked from hardest at the top to easiest at the bottom.

	Question content	Area assessed	Question number	Correct answer
Difficult Questions	Solve a problem involving rates and units of time	Number & Arithmetic	38	150
	Complete a table given overlapping information	Chance & Data	40	110
	Calculate the perimeter of a compound shape	Measures & Units	39	80
	Rotate two plane regular shapes and compare positions	Space & Geometry	37	12
	Compare 2-D shapes after folding and cutting	Space & Geometry	11	D
	Interpret a column graph to solve a problem	Chance & Data	29	B
	Determine the number of smaller rectangles that will fit into a larger square	Measures & Units	26	B
	Solve a problem involving the sum of odd numbers	Number & Arithmetic	30	C
	Visualise the orientations of pictures on an unfolded card	Space & Geometry	35	D
	Solve a problem involving am and pm time	Measures & Units	28	A
	Solve a problem involving division and mass	Measures & Units	27	B
	Complete the pattern to make a shape with one line of symmetry	Space & Geometry	15	A
	Find a given term in a pattern of odd numbers and triangular numbers	Algebra & Patterns	31	A
	Use logic and number facts to solve a problem	Number & Arithmetic	23	B
	Identify the cylinder with a given capacity	Measures & Units	9	C
	Determine the best starting point on a board game involving bearings	Space & Geometry	32	D
	Solve a problem involving multiplication and subtraction	Number & Arithmetic	25	A
	Use a strategy to solve a problem	Algebra & Patterns	36	13
	Read analogue clocks and calculate elapsed time	Measures & Units	18	A
	Calculate capacity using fractions of a whole	Number & Arithmetic	33	C
	Identify the net that forms a specific cube	Space & Geometry	20	D
	Identify the side view of a 3-D shape	Space & Geometry	34	D
	Use multiplication facts to solve a financial problem	Number & Arithmetic	19	C
	Complete a two-step number pattern	Algebra & Patterns	24	A
	Identify the angle in a race which involves the greatest change in direction	Space & Geometry	17	D
	Solve a problem involving sums and differences	Number & Arithmetic	12	A
	Calculate a length by applying a scale to a measurement	Measures & Units	16	C
	Solve a problem involving unit conversion and division	Measures & Units	4	C
	Compare lengths using unit conversion	Measures & Units	21	B
	Divide a quantity in a recipe by five	Number & Arithmetic	8	D
	Choose two games from four	Chance & Data	22	C
	Count the number of possible routes that can be followed in a park	Chance & Data	5	A
	Choose the appropriate unit for volume	Measures & Units	2	B
	Compare fractions, ratios and percentages to identify the correct statement	Number & Arithmetic	14	A
	Identify the triangle with an enlargement factor of 2	Space & Geometry	7	D
	Continue two simple patterns of whole numbers involving addition	Algebra & Patterns	13	B
	Identify axes of symmetry in the environment	Space & Geometry	1	D
	Continue a pattern that increases by threes	Algebra & Patterns	3	C
	Identify the expression that is not equivalent to a given value	Number & Arithmetic	6	B
Easy Questions	Order the chance of certain events occurring	Chance & Data	10	B