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.

MATHEMATICS

Educational Assessment Australia
eaa.unsw.edu.au
1. The diagram shows a figure and a line of reflection.

Which of these shows the figure reflected about the line?

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

2. What is the missing number?

\[ 2 \times ? - 1 = 7 \]

(A) 6  
(B) 4  
(C) 3  
(D) 2

3. Tony has a piece of thin wire 30 cm long. He bends the wire so that it forms a rectangle. Two sides of the rectangle are 6 cm each.

How long is each of the other sides?

(A) 5 cm  
(B) 9 cm  
(C) 12 cm  
(D) 24 cm

4. Here is the floor plan of a cabin on a cruise ship.

What fraction of the total cabin area do the two beds occupy?

(A) \( \frac{2}{3} \)  
(B) \( \frac{1}{3} \)  
(C) \( \frac{2}{9} \)  
(D) \( \frac{1}{9} \)

5. Which of the following units of measurement can be used to represent volume?

(A) cm  
(B) cm²  
(C) cm³  
(D) cm⁴
6. When Olivia weighed herself, the scale showed 58.2 kg. She took off her jacket and the scale showed 56.6 kg.

What was the mass of her jacket?

(A) 1.4 kg  
(B) 1.6 kg  
(C) 2.4 kg  
(D) 2.6 kg

7. A lift is designed to hold 13 people. The average person weighs 75 kg.

What weight is the lift designed to hold?

(A) 975 kg  
(B) 965 kg  
(C) 775 kg  
(D) 765 kg

8. The numbers 4, 6, 10, 18, ... form a number pattern.

Which statement best describes the number pattern starting from the second term?

(A) Each number is eight more than the previous number.  
(B) Each number is two less than twice the previous number.  
(C) Each number is two more than the previous number.  
(D) Each number is eight less than three times the previous number.

9. The diameters of the planets of our solar system are shown in the table.

<table>
<thead>
<tr>
<th>Planet</th>
<th>Diameter (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>4,900</td>
</tr>
<tr>
<td>Venus</td>
<td>12,100</td>
</tr>
<tr>
<td>Earth</td>
<td>12,800</td>
</tr>
<tr>
<td>Mars</td>
<td>6,800</td>
</tr>
<tr>
<td>Jupiter</td>
<td>143,000</td>
</tr>
<tr>
<td>Saturn</td>
<td>120,500</td>
</tr>
<tr>
<td>Uranus</td>
<td>51,100</td>
</tr>
<tr>
<td>Neptune</td>
<td>49,500</td>
</tr>
</tbody>
</table>

Which planet has a diameter that is larger than the diameter of Earth but smaller than the diameter of Uranus?

(A) Venus  
(B) Jupiter  
(C) Saturn  
(D) Neptune

10. Yara drew this graph to show the population of four regions in her country.

She wants to put the same information in a sector (pie) graph.

What angle should Yara use to represent the population of Westland?

(A)  64°  
(B)  90°  
(C)  150°  
(D)  180°
11. A rectangular pyramid has eight edges, five faces and five vertices.

Which of the options shows the number of edges, faces and vertices for a rectangular prism?

<table>
<thead>
<tr>
<th>Edges</th>
<th>Faces</th>
<th>Vertices</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) 4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(B) 8</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>(C) 12</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>(D) 12</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

13. Anish built a fence around this rectangular field.

He used a fence post every 1.2 metres. He left a space in the fence for a gate measuring 2.4 metres long.

How many fence posts did Anish use?

(A) 138
(B) 139
(C) 140
(D) 141

12. Tony drew two diameters on a circle. He counted four reflex angles formed by the diameters, as shown.

Tony drew another circle, this time with four diameters.

How many reflex angles are formed by the four diameters of the circle?

(A) 12
(B) 16
(C) 24
(D) 48

14. What is the missing number in this pattern?

9, 36, 81, 144, ??

(A) 225
(B) 207
(C) 171
(D) 169
15. Anish had these four cards.

2 5 7 9

He picked two cards at random and then added the numbers on these two cards to get a total.

The total has the greatest chance of being a multiple of:

(A) 2
(C) 4
(B) 3
(D) 7

16. Four students distributed posters around their school.

The table shows the fraction of the total number of posters each student distributed.

<table>
<thead>
<tr>
<th>Student</th>
<th>Fraction of posters distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anish</td>
<td>( \frac{3}{10} )</td>
</tr>
<tr>
<td>Jess</td>
<td>( \frac{1}{4} )</td>
</tr>
<tr>
<td>Natalia</td>
<td>( \frac{1}{20} )</td>
</tr>
<tr>
<td>Tony</td>
<td>( \frac{2}{5} )</td>
</tr>
</tbody>
</table>

Which student distributed the greatest number of posters?

(A) Anish
(B) Jess
(C) Natalia
(D) Tony

17. The column graph shows the minimum and maximum temperatures in Anyland for six months.

Which month has the greatest range in temperature?

(A) Jan
(C) May
(B) Feb
(D) Jun

18. Jess had 70 flowers and 8 vases.

She put an equal number of flowers in each vase.

Which of these can NOT be the number of flowers left over?

(A) 14
(B) 22
(C) 30
(D) 44
19. A boy and a girl start walking from the same point at the same time. The boy walks at 5 km/h while the girl walks at 7 km/h.

Their pet bird flies back and forth between them at an average speed of 15 km/h.

What distance has the bird flown after two hours?

(A) 12 km
(B) 24 km
(C) 30 km
(D) 54 km

20. The mathematical expression \(|M - N|\) describes the distance from \(M\) to \(N\) along the number line.

For example, if \(M = 1\) and \(N = 5\), then \(|M - N| = 4\).

\[
\begin{array}{cccccc}
-3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 \\
\hline
& & & & & & & & \\
\end{array}
\]

Anish selected other numbers for \(M\) and \(N\) and the result of \(|M - N|\) was 6.

Which two numbers could Anish have selected?

(A) 4 and 2
(B) 7 and 2
(C) 3 and 9
(D) 3 and 3

21. Jess, Natalia and Yara are jointly making a shirt for their school project.

Jess prepared the sleeves in \(x\) hours.
Natalia then completed the front and the back in \(2x + 1\) hours. After they had finished, Yara took three more hours to attach the sleeves to complete the shirt.

Which expression represents the total number of hours it took to complete the project?

(A) 6\(x\)
(B) 7\(x\)
(C) 2\(x\) + 4
(D) 3\(x\) + 4

22. Anita made this design.

She rotated the design 45° anti-clockwise around its centre. She then rotated it 135° clockwise around its centre.

What did the design look like after the rotations?
23. **LMNO** is a rectangle.

What is the area of the shaded part, in cm²?

(A) 77  
(B) \(51 \frac{2}{3}\)  
(C) \(38 \frac{1}{2}\)  
(D) 36

25. A cube has five white faces and one black face. The cube is rolled onto a table.

What is the chance that the black face is perpendicular to the table?

(A) one in six  
(B) two in six  
(C) three in six  
(D) four in six

26. How many multiples of 21 are there between 200 and 400?

(A) 9  
(B) 10  
(C) 11  
(D) 12


Each folder is 7 cm wide. The bookcase has 3 shelves and each shelf is 1.3 m wide.

How many folders can she store in the bookcase?

(A) 56  
(B) 54  
(C) 19  
(D) 18

27. Each shape in this pattern uses orange and white tiles.

Which rule gives the number of white tiles in relation to the number of orange tiles?

(A) \(2 \times (\text{orange tiles} - 1)\)  
(B) \(\text{orange tiles} - 1 \times 2\)  
(C) \(2 \times \text{orange tiles} - 1\)  
(D) \((\text{orange tiles} \times 2) - 1\)
28. Two faces of a die that do not share an edge or a vertex are said to be opposite faces.

The opposite faces of an eight-sided die add to 9.

Which is a correct net for such a die?

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

30. Tony suspects that he has a leaking water pipe in his house.

The diagrams show his water meter readings on two days.

Monday 15 June  
8 am  
Wednesday 17 June  
8 am  

He estimates that in these two days he should only have used a total of 850 litres.

He also estimates that the leak has wasted a total of 1000 litres up until the morning of Wednesday 17 June.

When did the leak start?

(A) Sunday 14 June  
(B) Saturday 13 June  
(C) Wednesday 10 June  
(D) Tuesday 9 June  

29. A group of volunteers planted a total of 30 trees in a local park. Three different types of trees were planted: eucalypt, wattle and pine trees.

Of the trees planted, 60% were eucalypt trees and 10% were wattle trees.

How many pine trees were planted?

(A) 9  
(B) 10  
(C) 21  
(D) 30
31. A board has squares on it as shown.

How many squares, of any size, can be traced on this board?

(A) 37  (B) 41  (C) 91  (D) 182

32. Yara created a picture on her computer.

To create a design, she made a copy of the picture and rotated the copy 90° anticlockwise about the point P.

Which of the following was her design?

(A)  

(B)  

(C)  

(D)  

33. The diagram shows quadrilateral PQRS in which RM bisects \( \angle R \) and QM bisects \( \angle Q \).

What is the value of \( x \)?

(A) 40  (B) 70  (C) 110  (D) 250

34. What is another way of writing the expression \( x + 2 + 3 \)?

(A) \( \frac{3x}{2} \)  (B) \( \frac{2x}{3} \)  (C) \( \frac{x}{5} \)  (D) \( \frac{x}{6} \)

35. \( 4! = 4 \times 3 \times 2 \times 1 \)

\( 5! = 5 \times 4 \times 3 \times 2 \times 1 \)

Jess wrote the expression \( 20! - 19! \) on the board.

Which of the following has the same value as this expression?

(A) 1!  (B) 20  (C) 19 \times 19!  (D) 20 \times 19!
36. Natalia designed a flag made of rectangles and squares.

\[
\text{blue}\quad\text{yellow}
\]

\[
\begin{array}{|c|c|}
\hline
\text{10 cm} \\
\hline
\end{array}
\]

The four yellow rectangles have the same area. The length of each yellow rectangle is twice its width.

The four blue squares all have the same area.

The length of the side of a blue square is half the width of a yellow rectangle.

What is the area of the white part, in \(\text{cm}^2\)?

37. A bottle contains a liquid. Natalia uses 20% of the liquid in one experiment and 50% of the remaining liquid in another experiment.

She then divides what was left of the liquid equally between two beakers. The amount of liquid in each beaker is 120 mL.

How much liquid was originally in the bottle, in mL?

38. In a magic square the rows, columns and diagonals each add up to the same number. In this magic square the numbers 39, 47, 55, 63, 67 and 71 are missing.

\[
\begin{array}{|c|c|c|}
\hline
43 & 59 & \boxed{?} \\
\hline
51 & \boxed{?} & \boxed{?} \\
\hline
\end{array}
\]

What number does \(\boxed{?}\) stand for?

39. The table shows the marks Anish and Yara scored in four tests.

<table>
<thead>
<tr>
<th></th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anish</td>
<td>40</td>
<td>89</td>
<td>23</td>
<td>48</td>
</tr>
<tr>
<td>Yara</td>
<td>90</td>
<td>18</td>
<td>67</td>
<td>75</td>
</tr>
</tbody>
</table>

After Anish and Yara completed their fifth test, the mean of Anish's marks was five more than the mean of Yara's marks.

How many more marks than Yara did Anish score in the fifth test?
40. A large water tank has two inlet pipes of different sizes, and one outlet pipe.

With the outlet pipe closed, it takes 3 hours to fill the empty tank using the large inlet pipe only. It takes 4 hours to fill the empty tank using the small inlet pipe only.

When the tank is full, and the inlet pipes are closed, it takes the outlet pipe 8 hours to empty the tank.

Assuming the tank is empty and all three pipes are opened, how long will it take to fill the tank, to the nearest minute?
The following year levels should sit THIS Paper:

<table>
<thead>
<tr>
<th>Country</th>
<th>Year/Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Year 7</td>
</tr>
<tr>
<td>Brunei</td>
<td>Form 1</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Year 8</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Form 1</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Year 8</td>
</tr>
<tr>
<td>Pacific</td>
<td>Year 7</td>
</tr>
<tr>
<td>Singapore</td>
<td>Primary 6</td>
</tr>
<tr>
<td>South Africa</td>
<td>Grade 7</td>
</tr>
</tbody>
</table>
2011 ICAS
International Competitions and Assessments for Schools

MATHEMATICS

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There are 35 MULTIPLE-CHOICE QUESTIONS (1-35).
Use the information provided to choose the BEST answer from
the four possible options.
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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. Anish kept a record of the number of books he borrowed over a period of four months.

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of books borrowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>4</td>
</tr>
<tr>
<td>February</td>
<td>7</td>
</tr>
<tr>
<td>March</td>
<td>4</td>
</tr>
<tr>
<td>April</td>
<td>?</td>
</tr>
</tbody>
</table>

Anish borrowed 23 books altogether over the four months.

How many books did he borrow in April?

(A) 7
(B) 8
(C) 12
(D) 23

2. Jess has two pieces of paper as shown.

Jess can make a solid using these two pieces of paper without cutting or overlapping them.

Which solid can she make?

(A) a cylinder
(B) a sphere
(C) a cube
(D) a cone

3. Here are the first four numbers in a pattern:

3, 6, 12, 24…

Which option shows the correct calculation to find the next number in the pattern?

(A) 24 + 3
(B) 24 + 6
(C) 24 × 2
(D) 24 × 4

4. Here is the floor plan of a cabin on a cruise ship.

What fraction of the total cabin area do the two beds occupy?

(A) \( \frac{2}{3} \)
(B) \( \frac{1}{3} \)
(C) \( \frac{2}{9} \)
(D) \( \frac{1}{9} \)

5. \( 7 - \frac{22}{5} = ? \)

(A) \( \frac{42}{5} \)
(B) \( \frac{33}{5} \)
(C) \( \frac{52}{5} \)
(D) \( \frac{53}{5} \)
6. Yara cut out a piece of cardboard and placed it near a line on grid paper. Which diagram shows Yara's piece of cardboard reflected in the line?

(A)  

(B)  

(C)  

(D)  

7. The picture shows four objects on a tray. What is the approximate total mass of the objects on the tray?

(A) 250 grams  
(B) 250 tonnes  
(C) 250 kilograms  
(D) 250 milligrams

8. Douglas, Ming and Omar each has a bag of marbles. Ming has 3 less marbles than Douglas. Omar has 12 less marbles than Douglas. Which statement is true?

(A) Ming has 15 more marbles than Omar.  
(B) Omar has 15 more marbles than Ming.  
(C) Omar has 9 more marbles than Ming.  
(D) Ming has 9 more marbles than Omar.

9. Natalia made a model using cubes. She drew the front view and the top view of the model. Which of these could be Natalia's model?
10. This table shows how long it took three adventurers to travel around the world.

<table>
<thead>
<tr>
<th>Name</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jess</td>
<td>410 days</td>
</tr>
<tr>
<td>Natalia</td>
<td>13 months</td>
</tr>
<tr>
<td>Tony</td>
<td>1.25 years</td>
</tr>
</tbody>
</table>

Which table lists the adventurers from fastest to slowest?

(A) Natalia 13 months
Jess 410 days
Tony 1.25 years

(B) Jess 410 days
Natalia 13 months
Tony 1.25 years

(C) Jess 410 days
Tony 1.25 years
Natalia 13 months

(D) Tony 1.25 years
Natalia 13 months
Jess 410 days

11. A rectangular pyramid has eight edges, five faces and five vertices.

Which of the options shows the number of edges, faces and vertices for a rectangular prism?

<table>
<thead>
<tr>
<th>Edges</th>
<th>Faces</th>
<th>Vertices</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>(B)</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>(C)</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>(D)</td>
<td>12</td>
<td>6</td>
</tr>
</tbody>
</table>

12. Anish was trying to lose weight. At the beginning of summer he weighed 76.5 kg. At the end of summer he weighed 69.8 kg.

How many kilograms did Anish lose?

(A) 16.7
(B) 13.3
(C) 7.3
(D) 6.7
13. Tony drew two diameters on a circle. He counted four reflex angles formed by the diameters, as shown.

Tony drew another circle, this time with four diameters.

How many reflex angles are formed by the four diameters of the circle?

(A) 12  (B) 16  (C) 24  (D) 48

14. Yara was standing at point X, as shown below. She walked 20 metres east. Then she walked 20 metres north. From there Yara walked a further 20 metres south-east.

What was the final point that Yara reached at the end of her walk?

15. Anish had these four cards.

2 5 7 9

He picked two cards at random and then added the numbers on these two cards to get a total.

The total has the greatest chance of being a multiple of:

(A) 2  (B) 3  (C) 4  (D) 7

16. Matt and Jade used this game board and a die numbered one to six.

Each player rolled the die onto the game board. The number that the die landed on was multiplied by the number on the top face of the die.

If the product was greater than 25, the player coloured the number.

Which number has been incorrectly coloured?

(A) 3.18  (B) 4.90  (C) 5.16  (D) 5.70
17. Tony walked in a straight line from point A to point Z.

The distance from A to Z is 2400 m.

Tony stopped twice before reaching Z. First he stopped after 5000 cm at point B. Then after a further one km, he stopped at point C.

How far did Tony walk from point C to point Z, in km?

(A) 0.90  (B) 1.35  (C) 2.25  (D) 22.50

18. The column graph shows the minimum and maximum temperatures in Anyland for six months.

![Column graph showing temperatures]

**KEY**
- minimum
- maximum

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>22</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>22</td>
<td>17</td>
<td>10</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Which month has the greatest range in temperature?

(A) Jan  (B) Feb  (C) May  (D) Jun

19. Whenever Yara enters a 2-digit number into her calculator, she always enters the digits in reverse order.

She is asked to add up the numbers 89, 98, 47, 77, and 85 using her calculator.

What is the difference between Yara’s answer and the correct answer?

(A) 0  (B) 38  (C) 54  (D) 132

20. This picture shows a boat that moves by turning pedals.

![Boat image]

To move forward 1 metre the pedals need to make 6 full turns. The boy in the boat is turning the pedals at a rate of 48 turns every minute.

At this rate how long will it take him to pedal the boat 1 kilometre?

(A) 1 hour and 20 minutes  (B) 1 hour and 25 minutes  (C) 2 hours and 5 minutes  (D) 4 hours and 48 minutes
21. Anish went to a store to buy jerseys for members of his nature club.

The store had a special sale where a customer got one jersey free for every two jerseys bought. The jerseys were priced at $8.50 each.

How many jerseys did Anish get for $42.50?

(A) 5  
(B) 7  
(C) 8  
(D) 10

22. The picture shows the area around Wendy's swimming pool.

She plans to have 5 pots along each side of the pool including a pot at every corner.

How many pots would Wendy need?

(A) 15  
(B) 20  
(C) 25  
(D) 30

23. Jess thought of a 2-digit number. The product of the digits of the number is equal to double the sum of the digits of the number.

Which of the following could be the number Jess thought of?

(A) 11  
(B) 22  
(C) 36  
(D) 42

24. Matthew had a 3 minute shower every day which used 13.5 litres of water per minute.

He installed a water-saving shower head which halved the amount of water used.

How much water does Matthew now use to shower in a week?

(A) 20.25 litres  
(B) 40.5 litres  
(C) 141.75 litres  
(D) 283.5 litres

25. Brett made this design on a computer.

He then rotated the design. After the rotation it looked exactly the same.

How many degrees would Brett have rotated the shape?

(A) 180°  
(B) 120°  
(C) 90°  
(D) 60°
26. Natalia has two ten-sided dice. Each die has the numbers 0 to 9 written on it, one on each face.

Natalia rolls the two dice and adds the numbers she gets.

Which of these totals does Natalia have the greatest chance of rolling?

(A) 2
(B) 9
(C) 10
(D) 18

27. The train from Canberra to Sydney leaves at 11:50 am and arrives at 3:05 pm. The bus from Canberra to Sydney leaves at 11:49 am and arrives at 4:08 pm.

Which of these statements is true?

(A) The travelling time for the train is 3 h 55 min.
(B) The travelling time for the bus is 5 h 41 min.
(C) The train arrives in Sydney 63 minutes before the bus.
(D) The travelling time for the bus is four minutes longer than the travelling time for the train.

28. Nina and Walid played a game. To score points they had to throw hoops around the sticks.

Throwing a hoop around stick Y scores more points than throwing a hoop around stick X.

Nina scored 14 points by throwing 3 hoops around stick X and 1 hoop around stick Y. Walid scored 16 points by throwing 2 hoops around each stick.

How many points are scored for throwing a hoop around stick Y?

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

29. Using only one cut, this shape can be divided into a rectangle and a square that have the same area.

Which of the following can be the perimeter of this shape, in m?

(A) 52
(B) 56
(C) 64
(D) 72
30. Two faces of a die that do not share an edge or a vertex are said to be opposite faces.

The opposite faces of an eight-sided die add to 9.

Which is a correct net for such a die?

(A)  
\[ \begin{array}{ccc}
5 & 7 & 6 \\
2 & 3 & 1 \\
4 & 8 & 8 \\
\end{array} \]

(B)  
\[ \begin{array}{ccc}
7 & 5 & 2 \\
3 & 4 & 6 \\
1 & 1 & 8 \\
\end{array} \]

(C)  
\[ \begin{array}{ccc}
1 & 2 & 6 \\
7 & 8 & 3 \\
4 & 4 & 5 \\
\end{array} \]

(D)  
\[ \begin{array}{ccc}
2 & 6 & 1 \\
8 & 3 & 5 \\
7 & 3 & 7 \\
\end{array} \]

32. Tony suspects that he has a leaking water pipe in his house.

The diagrams show his water meter readings on two days.

Monday 15 June 8 am

Wednesday 17 June 8 am

He estimates that in these two days he should only have used a total of 850 litres.

He also estimates that the leak has wasted a total of 1000 litres up until the morning of Wednesday 17 June.

When did the leak start?

(A) Sunday 14 June

(B) Saturday 13 June

(C) Wednesday 10 June

(D) Tuesday 9 June

31. Tony has a rectangular yard. The yard has two paths and four grass areas. One path is parallel to the longer side of the yard and the other is parallel to the shorter side.

![Diagram of the yard with dimensions 50 m x 40 m and 2 m x 2 m]

What is the total area of the two paths, in square metres?

(A) 172

(B) 176

(C) 180

(D) 184
33. Yasmeen wants to cut this rectangle into identical pieces, with no bits left over.

Which shape can the pieces be?

(A) 

(B) 

(C) 

(D) 

34. A board has squares on it as shown.

How many squares, of any size, can be traced on this board?

(A) 37  (B) 41  

(C) 91  (D) 182  

35. 

\[ 4! = 4 \times 3 \times 2 \times 1 \]

\[ 5! = 5 \times 4 \times 3 \times 2 \times 1 \]

Jess wrote the expression \(20! - 19!\) on the board.

Which of the following has the same value as this expression?

(A) \(1!\)

(B) \(20\)

(C) \(19 \times 19!\)

(D) \(20 \times 19!\)

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. An isosceles triangle is drawn over a yellow rectangle and a blue semicircle as shown in the diagram.

The rectangle is 6 m long and 4 m wide.

What is the area of triangle \(ABC\), in square metres?
37. Jess and Yara are walking laps around a park.

Jess completes each lap in 10 minutes and then rests for 1 minute before starting the next lap.

Yara completes each lap in 13 minutes and then rests for 2 minutes before starting the next lap.

Jess and Yara start walking together in the same direction.

How many minutes will it be until they both meet together again?

38. The mass of a bag of Red Star sugar is 20% greater than the mass of a bag of Blue Star sugar.

However, a bag of Red Star sugar costs 50% more than a bag of Blue Star sugar.

For the same mass, Red Star sugar costs $\%$ more than Blue Star sugar.

What number should $\%$ be?

39. | 2, 3, 5, 7, 11, 13, $\square$ |
| 5, 7, 11, 13, 17, 19, $\square$ |
| 7, 10, 16, 20, 28, 32, $\square$ |

What number should be placed in $\square$ to complete the pattern?

40. Anish, Jess, Natalia and Tony are to be seated on four chairs at the table shown.

Anish and Tony must sit next to each other. Natalia cannot sit next to Anish.

In how many different ways can they all be seated?
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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