DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

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.

MATHEMATICS

MARKS are NOT deducted for incorrect answers.

MULTIPLE-CHOICE QUESTIONS:

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.

FREE-RESPONSE QUESTIONS:

Write your answer in the boxes provided on the ANSWER SHEET and fill in the oval that matches your answer.

You may use a ruler and spare paper.

A CALCULATOR is required.
1. The plans for a new school hall are on display. These plans show a front view, a side view and a top view of the hall.

Which of the diagrams shows a correct three-dimensional view of the new hall?

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

2. A rotary clothes line is 180 cm from the ground at its lowest level and 210 cm when it is at its highest.

When the handle is given one full turn, the height of the clothes line increases by 30 mm.

How many full turns of the handle will it take to raise the clothes line from its lowest to its highest level?

(A) 10  
(B) 30  
(C) 100  
(D) 300  

3. Henry made a pattern with blocks, as shown.

In Stage 2 Henry used a total of five blocks.

How many blocks does Henry need for Stage 5?

(A) 16  
(B) 17  
(C) 18  
(D) 21
4. Sandra has these pictures on her website.

Picture 1 uses 7.25 Kb of memory.

Picture 2 uses 3.323 Kb of memory.

Approximately how much memory does Picture 2 use as a percentage of the memory used by Picture 1?

(A) 54%  
(B) 46%  
(C) 43%  
(D) 39%

5. Lin cut this square picture out of a magazine.

She made an enlarged copy that was still square but twice as wide.

Lin cut off a rectangle from the right of the picture.

The picture was now a rectangle whose width was $\frac{2}{3}$ of the height.

She then doubled the width of the picture.

The area of the rectangle was now 139 968 mm$^2$.

How high, in mm, was the original picture?

END OF PAPER
The following year levels should sit THIS Paper:

<table>
<thead>
<tr>
<th>Country</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Year 9</td>
</tr>
<tr>
<td>Brunei</td>
<td>Form 4</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Form 3</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Year 10</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Form 3</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Year 10</td>
</tr>
<tr>
<td>Pacific</td>
<td>Year 9</td>
</tr>
<tr>
<td>Singapore</td>
<td>Secondary 2</td>
</tr>
<tr>
<td>South Africa</td>
<td>Grade 9</td>
</tr>
</tbody>
</table>
HOW TO FILL OUT THIS SHEET:

- Rub out all mistakes completely.
- Print your details clearly in the boxes provided.
- Make sure you fill in only one oval in each column.

**EXAMPLE 1:** Debbie Bach

<table>
<thead>
<tr>
<th>FIRST NAME</th>
<th>LAST NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEBBIE</td>
<td>BACH</td>
</tr>
</tbody>
</table>

**EXAMPLE 2:** Chan Ai Beng

<table>
<thead>
<tr>
<th>FIRST NAME</th>
<th>LAST NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAN</td>
<td>AI BENG</td>
</tr>
</tbody>
</table>

**EXAMPLE 3:** Jamal bin Abas

<table>
<thead>
<tr>
<th>FIRST NAME</th>
<th>LAST NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZAMAL</td>
<td>BIN ABAS</td>
</tr>
</tbody>
</table>

**FIRST NAME** to appear on certificate

**LAST NAME** to appear on certificate

**DATE OF BIRTH**

<table>
<thead>
<tr>
<th>Day</th>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
</table>

**CLASS** (optional)

Are you male or female?
- Male
- Female

Does anyone in your home usually speak a language other than English?
- Yes
- No

School name: ________________________________

Town / suburb: ______________________________

Today’s date: ___________ Postcode: ___________
TO ANSWER THE QUESTIONS

MULTIPLE CHOICE

Example: \(6 + 4 =\)

(A) 2
(B) 9
(C) 10
(D) 24

The answer is 10, so fill in the oval \(\circ\), as shown.

FREE RESPONSE

Example: \(6 + 6 =\)

- The answer is 12, so WRITE your answer in the boxes.
- Write only ONE digit in each box, as shown, and fill in the correct oval, as shown.

Your privacy is assured as EAA fully complies with appropriate Australian privacy legislation. Visit www.eaa.unsw.edu.au for more details.
Let $x$ be the side length of the original picture.

After the first transformation, the picture is still a square, but now with a side length of $2x$.

After cutting off a rectangle from the right of the picture, the picture is now a rectangle with height $2x$ and width $\frac{2}{3}$ of $2x$ which equals $\frac{4x}{3}$.

After the final transformation, the width is doubled, $\frac{8x}{3}$, but the height stays the same, $2x$.

The area of the picture is now $139 968$ mm$^2$.

Hence,

\[
2x \times \frac{8x}{3} = 139 968
\]

\[
\frac{16x^2}{3} = 139 968
\]

\[
x^2 = \frac{139 968 \times 3}{16}
\]

\[
x = \sqrt{26 244}
\]

\[
x = 162
\]
**Level of difficulty** refers to the expected level of difficulty for the question.

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy</td>
<td>more than 70% of candidates will choose the correct option</td>
</tr>
<tr>
<td>Medium</td>
<td>about 50–70% of candidates will choose the correct option</td>
</tr>
<tr>
<td>Medium/Hard</td>
<td>about 30–50% of candidates will choose the correct option</td>
</tr>
<tr>
<td>Hard</td>
<td>less than 30% of candidates will choose the correct option</td>
</tr>
</tbody>
</table>