Year 9 NUMERACY
Non-calculator

Test 2

INSTRUCTIONS TO STUDENTS

Use a 2B pencil to show your answers.

For the multiple-choice questions, show your answer by shading the matching bubble. If you make a mistake, erase the shading and shade the correct bubble.

For the other questions, write your answer in the box provided. If you make a mistake, erase it and write the correct answer.
1. The object below is made from 11 cubes.

Which one of these shows the top view of the object?

2. A 6-sided die is rolled once.
What is the chance that a number greater than 4 is obtained?

\[
\begin{align*}
\frac{1}{6} & \quad \frac{1}{4} & \quad \frac{1}{3} & \quad \frac{2}{3}
\end{align*}
\]

3. This ruler was used to measure the length of the line in centimetres.

Approximately how long is the line?

\[
\begin{align*}
2.1 \text{ cm} & \quad 3.1 \text{ cm} & \quad 4.1 \text{ cm} & \quad 4.6 \text{ cm}
\end{align*}
\]
4. There were 150 pictures for sale in an art show. 20% of the pictures were sold during the show. How many pictures were sold?

5. A number is multiplied by itself and then 5 is added. The answer is 30. What is the number?

6. The area of the shaded rectangle is 72 cm². What is the length of the shaded rectangle?

7. Which of the following is the best estimate for $14 \times 37 + 69 - 36 \div 9$?
   - $10 \times 40 + 70 - 40 \div 10$
   - $20 \times 40 + 70 - 30 \div 10$
   - $10 \times 40 + 60 - 30 \div 10$
   - $10 \times 40 + 60 - 40 \div 10$
8. The area of the shape shown is given by which expression?

- $a \times b + c \times d$
- $a \times d + b \times c$
- $2d + 2(b + c \times c)$
- $a + b + c + d$

9. Alex made these two objects by gluing cubes together.

Which object below could not be made by joining Alex’s two objects?

10. A choir contains 6 girls and 4 boys.

Their names are put into a hat and one is chosen, without looking, to be the conductor.

What is the chance that the conductor is a girl?
11 $\sqrt{500}$ is between:

- 15 and 20
- 20 and 25
- 25 and 30
- 100 and 400

12 A horizontal slice is made right through a cone as shown.

Which shows the shape of the cross-section made by the slice?

13 Which expression is equivalent to $4 - 5m$?

- $5 - 4m$
- $-5m + 4$
- $-4 + 5m$
- $5m - 4$
14 The labels on 24 of the 40 tins of tomatoes on a supermarket shelf were damaged.

The fraction of the tins with damaged labels was:

\[
\frac{1}{2} \quad \frac{2}{3} \quad \frac{3}{5} \quad \frac{4}{5}
\]

15 Theo spins the arrow 100 times.

Which table is most likely to show his results?

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of spins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of spins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of spins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>60</td>
</tr>
</tbody>
</table>

16 Which expression is equivalent to \(2^3 \times 8^2\)?

- \(2 \times 3 \times 8 \times 2\)
- \(2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2\)
- \(2 \times 2 \times 2 \times 8 \times 2\)
- \(2 \times 3 \times 8 \times 8\)
17 1500 copies of an advertisement were printed.  
One-fifth of the copies were put into letterboxes.  
10% of the remaining copies were put into a recycling bin.  
How many copies of the advertisement were put into the recycling bin?  

30  
60  
120  
300

18 The coordinates of the point P are (15,2).  
PN is parallel to the y axis.  
PN = 5, MN = 12 and MP = 13.

![Diagram](image)

What are the coordinates of the point M?  
(2,7)  
(3,7)  
(5,12)  
(13,7)

19 Seven numbers are: 1 2 5 5 5 5 6  
Which one of the following statements is true?  
The mean, median and the mode are equal.  
The mean is greater than the median.  
The median and mode are both 5.  
There is no mode.
20 Two numbers added together equal 15.
The larger number divided by the smaller number equals 2.
What are the two numbers?

and

21 The area of the shaded square is 26 cm².

What is the area of the square ABCD?

22 When \( m = 5 \) and \( n = -4 \), what is the value of \( m^2 - n^2 \)?

\[ m^2 - n^2 = \]
23 19 small hexagons are joined to form the shape shown.

What fraction of the area of the shape is shaded?

24 The distance from Here to There is approximately:
- twice the distance from Here to Now
- 10 times the distance from Here to Where.

About how many times the distance from Here to Where is it from Here to Now?

\[
\begin{array}{c@{\quad}c@{\quad}c@{\quad}c}
\frac{1}{10} & \frac{1}{5} & 5 & 10 \\
\Box & \Box & \Box & \Box \\
\end{array}
\]

25 There are 120 L of water in Carmen’s water tank.
She has a water-saver showerhead.
Water flows at 9 L per minute.
Carmen showers for 4 minutes.
Which calculation gives the number of litres of water remaining in the tank after Carmen’s shower?

\[
\begin{array}{c}
\Box & 120 + 9 \times 4 \\
\Box & 120 - 9 + 4 \\
\Box & 120 - 9 \times 4 \\
\Box & (120 - 9) \times 4 \\
\end{array}
\]
26 Which of the following points does not lie on the line with equation \( y = 3x - 5 \)?

\[ (-2, -11) \quad (0, -5) \quad (2, 1) \quad (3, 6) \]

27 The price of a pair of jeans was $55.
The price was increased by 10%.
Which calculation will give the new price?

\[ 55 \times 1.1 \quad 55 \times 0.9 \quad 55 - 10 \quad 55 + 10 \]

28 The grid shows all the possible outcomes when two 6-sided dice are rolled.
Use the grid to find the chance of obtaining a total of 6 when two die are rolled.
29. The entire rectangle below is to be covered with tiles shaped like this one (shown right).

Altogether how many of these tiles will be used?

30. $5(2x - 4) + 6 + ? = 7x - 14$

What term makes this equation true for all values of $x$?

31. Which number has the largest value?

\[
\frac{1}{5} \quad \sqrt{0.04} \quad 0.25 \quad (0.4)^2
\]