Year 9 NUMERACY
Non-calculator

Test 3

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 formed using 11 cubes.

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

2. A spinner is marked with equal sections numbered from 1 to 8. The spinner is spun once. What is the chance that the spinner lands on a 2?

3. What speed is shown on the speedometer?
4. Jill had $50 to spend.
   She spent 20% of her money buying a book.
   How much did Jill have left after she bought the book?
   $

5. A number is multiplied by itself and then 6 is subtracted.
   The answer is 30.
   What is the number?

6. The perimeter of the rectangle is 36 cm.

   What is the value of $L$?

7. Which of these is the best estimate for $13 \times 28 + 12 - 88$?
   - $10 \times 30 + 10 - 90$
   - $10 \times 20 + 10 - 80$
   - $20 \times 30 + 20 - 90$
   - $20 \times 30 + 10 - 80$
8 A piece of a puzzle is shown in the diagram.
Which expression gives the area of the piece?

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

9 Sam made these two objects by gluing cubes together.

Which object below could not be made by joining Sam's two objects?

10 A bag contains 12 red, 3 green and 5 blue balls.
Without looking, Suri takes a ball from the bag.
What is the chance that the ball is blue?

- $\frac{1}{5}$
- $\frac{1}{4}$
- $\frac{1}{3}$
- $\frac{1}{2}$
11 \( \sqrt{150} \) is between:

- 10 and 12
- 12 and 14
- 14 and 16
- 50 and 100

12 A horizontal slice is made right through the prism shown.

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

- Pentagon
- Square
- Trapezium
- Rectangle

13 Which expression is equivalent to \( 4p - 6pt \)?

- \( 6pt - 4t \)
- \( -6pt + 4p \)
- \( 6p - 4pt \)
- \( -4p + 6pt \)
14 There are 12 novels and 6 magazines on a shelf. What fraction of the items on the shelf are novels?

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

15 Ben spins the arrow 200 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>A</td>
<td>40</td>
</tr>
<tr>
<td>B</td>
<td>40</td>
</tr>
<tr>
<td>C</td>
<td>80</td>
</tr>
<tr>
<td>D</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of spins</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>40</td>
</tr>
<tr>
<td>B</td>
<td>40</td>
</tr>
<tr>
<td>C</td>
<td>40</td>
</tr>
<tr>
<td>D</td>
<td>80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of spins</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>40</td>
</tr>
<tr>
<td>D</td>
<td>120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of spins</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>50</td>
</tr>
<tr>
<td>B</td>
<td>50</td>
</tr>
<tr>
<td>C</td>
<td>50</td>
</tr>
<tr>
<td>D</td>
<td>50</td>
</tr>
</tbody>
</table>

16 Which expression is equivalent to \(9^3 \times 3^3\)?

- \(3 \times 3 \times 3 \times 3 \times 3 \times 3\)
- \(9 \times 9 \times 3 \times 3\)
- \(9 \times 2 \times 3 \times 3\)
- \(9 + 9 + 3 + 3 + 3\)
17 A team scored 30 points.
The table shows the number of points scored by 4 of the 5 players.

<table>
<thead>
<tr>
<th>Player</th>
<th>Anne</th>
<th>Bev</th>
<th>Chris</th>
<th>Diane</th>
<th>Emmy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td>6</td>
<td>10</td>
<td>4</td>
<td>4</td>
<td>?</td>
</tr>
</tbody>
</table>

What percentage of the points were scored by Emmy?

- 6%
- 20%
- 24%
- 80%

18 \(ABCD\) is a trapezium.
\(AB\) is parallel to \(CD\).
\(AD\) and \(BC\) are equal in length.
What are the coordinates of \(C\)?

( , )

19 The number of errors on 10 pages of an assignment were:

1 3 4 4 7 8 8 9 40

What will change if the 40 is removed from the set?

- the mean only
- the mean and median
- the mode only
- the mean, median and mode
20 Two numbers added together equal 5.
The two numbers multiplied together equal \(-14\).
What are the two numbers?

\[ \quad \text{and} \quad \]

21 The octagon \(ABCDEFGH\) has all sides of equal length.
\(O\) is the centre of the circle around the octagon.
The area of the shaded triangle is \(20\, \text{cm}^2\).

What is the area of the octagon \(ABCDEFGH\)?

\[ \quad \text{cm}^2 \]

22 When \(a = 6\) and \(b = -3\), what is the value of \(a^2 + ab\)?

\[ \quad \]
23. What fraction of the hexagon is **not** shaded?

24. Jill has $5 more than Pam.
   Sue has $6 less than twice the amount Jill has.
   If Pam has $22, how much does Sue have?
   
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$21</td>
<td>$42</td>
<td>$48</td>
<td>$54</td>
</tr>
</tbody>
</table>

25. A repair company charges a fixed fee of $50 plus $40 per half hour in labour costs.
   A repair takes $1 \frac{1}{2}$ hours.
   Which calculation gives the total cost?
   
   - $\big(50 + 40\big) \times 1.5$
   - $50 + 40 \times 1.5$
   - $50 + 40 \times 3$
   - $\big(50 + 40\big) \times 3$
26 Which of the following points lies on the straight line joining the points (2,2) and (6,10)?

(3,5) (4,7) (5,9) (7,12)

27 Last week the price of a kilogram of bananas was $2.50.
   The price has increased by 10% this week.
   What is the price this week?

$0.25 $2.25 $2.75 $25

28 A coin is tossed 3 times.
   There are 8 possible outcomes.
   What is the chance of getting at least one tail?
29 A mat is in the shape of a hexagon.

Part of the mat is covered with small regular hexagonal tiles.
The remainder is to be covered with triangular tiles like this one: △
How many triangular tiles will be needed?

30 \(3(a+5) - 2a + ? = a + 12\)

What term makes this equation true for all values of \(a\)?

31 Which number has the smallest value?

\[\left(\frac{2}{5}\right)^2 \quad 0.5 \times 0.4 \quad (0.5)^2 \quad \frac{8}{20}\]