Maharashtra State Board
Class VI Mathematics
Board Paper 2

Time: 2 hr 30 min
Total Marks: 60

Note:
1. All questions are compulsory.
2. Use of calculator is not allowed.

Q1. Solve the following: [12 x 1 = 12]

1. Classify the numbers given below into numbers to the left of zero and to the right of zero on the number line.
   -9, +5, -28, -100, +81, -4, -1, +1, +72, -48, +65, -95

2. For the equation \(6 = k - 2\), what is the value of \(k\)?

3. How many exterior angles does a triangle have in all?

4. Convert the fraction \(\frac{7}{20}\) into percentage.

5. If the diameter of the circle is 5.6 cm, what is the length of its radius?

6. Find the difference between the magnitudes of the two numbers: \(-7\) and \(+9\).

7. \(\triangle PQR\) is an isosceles triangle, \(PQ = 7\) cm, \(QR = 6\) cm. What can be the possible measures of side \(PR\)?

8. What is the sum of \(15x\) and \(7y\)?

9. The length and breadth of a rectangle are 12 cm and 10 cm respectively. Find its area.

10. The side of a cube is 10 cm. What is its volume?

11. \(-16 - (-9) = \) ____

12. Write the coefficient and variable in the algebraic term \(-5b^3\).
Q2. Solve the following:  \[8 \times 2 = 16\]

1. What would it cost to paint a wall 5 m long and 3 m high if the cost of painting one square metre is Rs. 15?

2. Calculate 5% of 60.

3. If \(a = 3\), \(b = 4\) and \(c = -2\), find the value of expression \(b^2 + a^2 - c^2\).

4. In \(\triangle ABC\), \(m\angle ABC = 110^\circ\), side \(AB = 5\) cm and \(BC = 7\) cm. From the description above, write the type of \(\triangle ABC\) with a suitable reason.

5. Simplify:
   \((-5) \times [-13 + 10]\)

6. The measure of the exterior angle \(\angle BCD\) of \(\triangle ABC\) is \(130^\circ\), \(m\angle ABC = 60^\circ\). Find the measure of \(\angle BAC\).

7. If a water tank is of length 5 m, breadth 3 m and height 1 m, what is its volume?

8. Draw a circle with radius 45 mm. What is the diameter of this circle?

Q3. Solve the following [Any five]:  \[5 \times 3 = 15\]

1. The interest on Rs. 15,000 after 2 years at a rate of 11 p.c.p.a. is Rs. 3,300. What will be the interest on the same principal at the same rate after 6 years?

2. Find the diameter of the circle.
   (i) If radius = 12.9 cm
   (ii) If radius = 0.6 m
   (iii) If radius = 8.5 cm
3. Shamita wants to change the tiles of her room which is 25 m long and 22 m wide. She wants to use square tiles whose each side measures 1 m. How many tiles will she need?

4. Look at the figure and answer the following questions:

(i) Name all the triangles in the figure.
(ii) Name all the triangles having the vertex O.
(iii) Name all the triangles having the vertex A.

5. Add $2p + 3q + 4c$ and $4q - 5p$ in horizontal arrangement.

6. If all three angles of a triangle are equal then what is the measure of each angle?

7. Draw a line AB. Take any point C outside the line. Draw a perpendicular to line AB through point C using the compass.

Q4. Solve the following [Any three]:

1. The numbers of different types of books available in a library are shown in the table below. Draw a corresponding bar graph. Write the numbers 0, 25, 50, 75, ... at 1 cm intervals on the Y-axis.

<table>
<thead>
<tr>
<th>Type of books</th>
<th>Number of books</th>
</tr>
</thead>
<tbody>
<tr>
<td>Story books</td>
<td>250</td>
</tr>
<tr>
<td>Novels</td>
<td>200</td>
</tr>
<tr>
<td>Plays</td>
<td>150</td>
</tr>
<tr>
<td>Poetry</td>
<td>100</td>
</tr>
</tbody>
</table>
2. Look at the given figure and answer the following:

(i) Name the points which are in the exterior and the interior of the circle.
(ii) Name the radii of the circle.
(iii) Name the diameter of the circle.
(iv) Name the chords of the circle.

3. A wall of length 10 m was to be built across an open ground. The height of the wall is 4 m and thickness of the wall is 24 cm. If this wall is to be built up with bricks whose dimensions are 24 cm × 12 cm × 8 cm, how many bricks would be required?

4. What will be the interest for 2 years on Rs. 20,000 principal at the rate of 10 p.c.p.a?

5. Draw angle measuring 146°. Draw the bisector of this angle.

Q5. Solve the following [Any one]:

1. The average sea temperature for Mumbai over a year is shown in the table below. Draw a corresponding bar graph.

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Sea Temperature (°C)</td>
<td>25°</td>
<td>25°</td>
<td>26°</td>
<td>27°</td>
<td>29°</td>
<td>29°</td>
<td>29°</td>
<td>28°</td>
<td>28°</td>
<td>29°</td>
<td>28°</td>
<td>26°</td>
</tr>
</tbody>
</table>

2. Use the properties of an equality to solve the following equations:
   (i) \( \frac{y}{5} = 12 \)
   (ii) \( 8 = 3u \)