

# JSUNIL TUTORIAL

## Summative Test – 1

### Mathematics - Class IX-2011

Time: 3 to 3 ½ hours

Max. Marks: 80

1. All questions are compulsory.
2. The questions paper consists of 34 questions divided into four sections A, B, C and D. Section A comprises of 10 questions of 1 mark each, Section B comprises of 8 questions of 2 marks each, Section C comprises of 10 questions of 3 marks each and Section D comprises of 6 questions of 4 marks each.
3. Question numbers 1 to 10 in section A are multiple choice questions where you have to select one correct option out of the given four.

#### Section A

1. Which of the following can be expressed in the form of  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ 
  - a. 0.3454454445...
  - b. 0.045045604567...
  - c. 0.234523452345...
  - d. 0.63263216326322 ...
2. The remainder when  $2x^3 - 5x^2 - 7$  is divisible by  $x - 2$  is
  - a. 12
  - b. 16
  - c. -9
  - d. 2
3. The value of the polynomial  $-9x^3 - 5x + 1$  at  $x = -\frac{1}{3}$  is
  - a. 2
  - b. -2
  - c. 3
  - d. -3
4. The three vertices of a rectangle ABCD are  $A(2, -3)$ ,  $B(5, -3)$  and  $C(5, 0)$ . The coordinates of fourth vertex D is \_\_\_\_.
  - a. (2, -3)
  - b. (2, 0)
  - c. (0, 5)
  - d. (5, -3)

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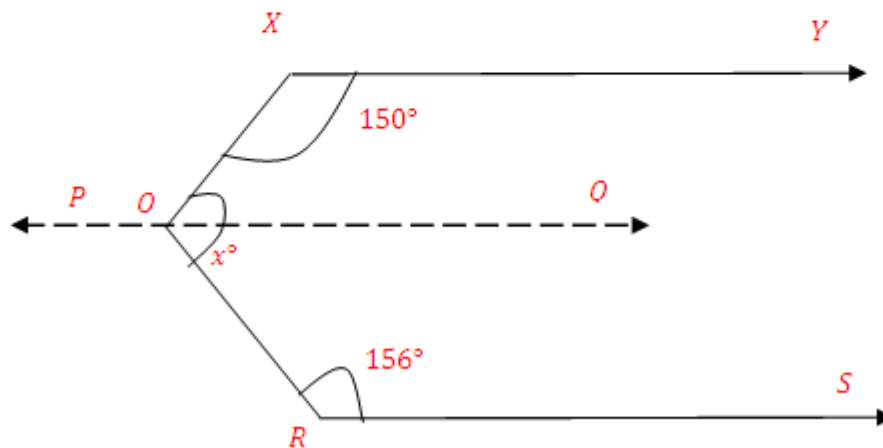
5. The point  $(2, -3)$  lies in the \_\_\_ quadrant.
- I*
  - II*
  - III*
  - IV*
6. Given two distinct points, the number of lines that passes through both of them is/are ...
- 2
  - 1
  - infinite
  - 0
7. The measure of an angle that is  $18^\circ$  less than its complement is
- $54^\circ$
  - $64^\circ$
  - $36^\circ$
  - $38^\circ$
8. ABC is a triangle in which  $\angle A = 75^\circ$  and  $\angle B = 70^\circ$ . Which of the following is true for the sides of a triangle?
- $BC < AB$
  - $AB > AC$
  - $BC > AC$
  - $AC > BC$
9. The area of an equilateral triangle whose perimeter is  $36\sqrt{3}$  cm is
- $36\sqrt{3} \text{ cm}^2$
  - $108\sqrt{3} \text{ cm}^2$
  - $72\sqrt{3} \text{ cm}^2$
  - $98\sqrt{3} \text{ cm}^2$
- Answer: b
10. What is the area of a triangle whose base is 5 cm and height 14 cm
- $35 \text{ cm}^2$
  - $45 \text{ cm}^2$
  - $25 \text{ cm}^2$
  - $30 \text{ cm}^2$

## Section B

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1. Check whether  $3\sqrt{5}$  is an irrational number or not.
2. Simplify:  $27^{\frac{1}{6}} \times 27^{\frac{1}{2}}$
3. Find the value of  $k$ , if  $x - 12$  is a factor of  $x^3 - 23x^2 + 142x + k$ .
4. Factorise:  $4x^2 + 9y^2 + z^2 + 12xy - 6yz - 4xz$
5. Two adjacent angles on a straight line are  $(3x - 2)^\circ$  and  $(2x + 7)^\circ$ . Find the value of  $x$  and the measure of each angle
6. Find the area of a triangle with sides  $28\text{ cm}$ ,  $21\text{ cm}$  and  $35\text{ cm}$ .
7. In the following figure,  $XY \parallel RS$ . Find the value of  $x$ .



8. One angle of a triangle is  $76^\circ$  and the other two angles are in the ratio 5:8. Find the measure of other angles.

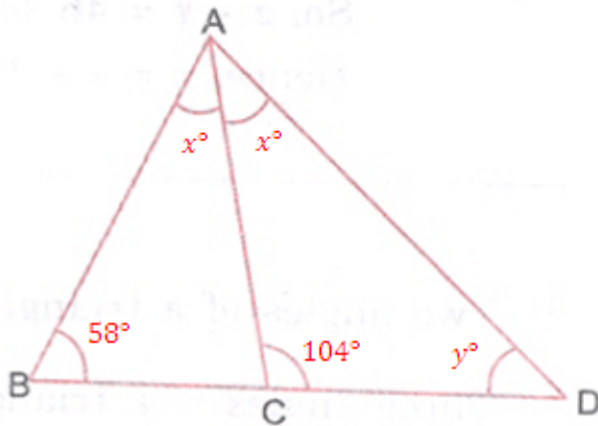
## Section C

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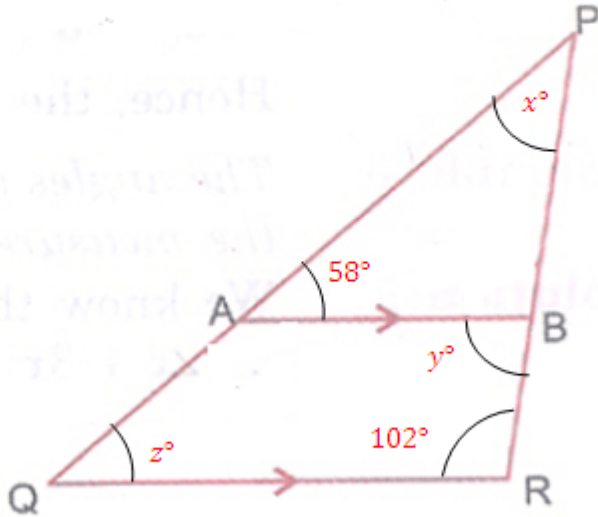
1. Represent  $2.\overline{321}$  in the form of  $\frac{p}{q}$ .
2. Rationalise the denominator of  $\frac{-2}{(3\sqrt{3}+\sqrt{5})}$ .
3. Without actually calculating the cubes, find the value of the following:  
 $12^3 + (-17)^3 + (-7)^3$
4. Factorise the following using factor theorem:  $12x^2 + 5x - 2$
5. Plot the following points on the graph. Join the points and name the figure so formed.

$A(-3, 1), B(2, 1), C(-3, -3)$  and  $D(2, -3)$

6. Find the area of a triangle whose two sides are of length  $13\text{ cm}$  and  $20\text{ cm}$  and perimeter is  $54\text{ cm}$ .
7. Find the value of  $x$  and  $y$ .

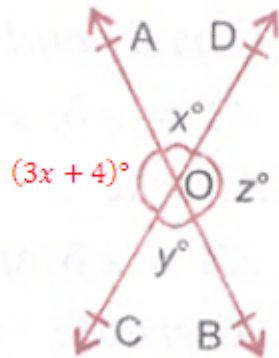


8. In the figure  $AB \parallel QR$ . Find the value of  $x, y$  and  $z$ .



9. Check whether the polynomial  $9r^3 + 15r^2 - 9r + 1$  is a multiple of  $(r - \frac{1}{3})$ .

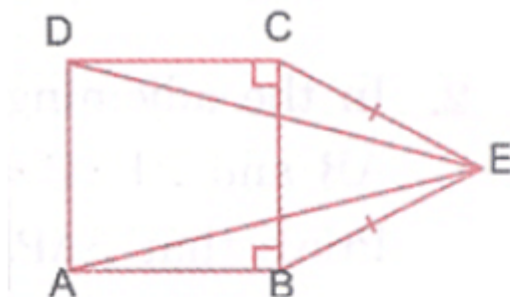
10. Find the values of  $x, y$  and  $z$ .



## Section D

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- Express 4.3 geometrically.
- Two sides of a triangle with perimeter 112 cm are 50 cm and 48 cm. Find the area of the triangle. Also, find the length of altitude corresponding to the side of length 50 cm. Verify the result.
- Find the remainder when  $x^3 - 4x^2 - 11x + 33$  is divided by  $x - 3$  by long division method. Verify the result using remainder theorem.
- If  $(y - \frac{1}{y}) = 3$ , find the value of
  - $(y^2 + \frac{1}{y^2})$
  - $(y^4 + \frac{1}{y^4})$
- Prove that angles opposite to equal sides of an isosceles triangle are equal.  
In the adjoining figure, ABCD is a square and CEB is an isosceles triangle in which  $EC = EB$ . Show that  $\triangle DCE \cong \triangle ABE$ .



- Find the value of  $x$ , for which the given lines AB and CD are parallel. Also, find the values of  $y$  and  $z$ .

