

# PRACTICE PAPER 1

## Mathematics Class 10th (Term I)

### Instructions

1. This paper has 40 questions.
2. All questions are compulsory.
3. Each question carry 1 mark.
4. Answer the questions as per given instructions.

Time : 90 Minutes

Max. Marks : 40

### Multiple Choice Questions

1. The rational form of  $0.25\overline{4}$  is in the form of  $\frac{p}{q}$ , then  $(p + q)$  is
 

(a) 14	(b) 55
(c) 69	(d) 79
2. If two positive integers  $p$  and  $q$  can be expressed as  $p = ab^2$  and  $q = a^3b$ ; where  $a, b$  being prime numbers, then LCM  $(p, q)$  is equal to
 

(a) $ab$	(b) $a^2b^2$
(c) $a^3b^2$	(d) $a^3b^3$
3. After how many decimal points, number  $\frac{5}{1600}$  will terminate?
 

(a) 5	(b) 6
(c) 7	(d) 8
4. The smallest prime number is
 

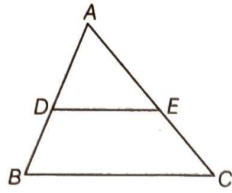
(a) 1	(b) 2
(c) 3	(d) 0
5. If the square of difference of the zeroes of the quadratic polynomial  $x^2 + px + 45$  is equal to 144, then the value of  $p$  is
 

(a) $\pm 9$	(b) $\pm 12$
(c) $\pm 15$	(d) $\pm 18$
6. A quadratic polynomial, whose zeroes are  $-3$  and  $4$ , is
 

(a) $x^2 - x + 12$
(b) $x^2 + x + 12$
(c) $\frac{x^2}{2} - \frac{x}{2} - 6$
(d) $2x^2 + 2x - 24$
7. The degree of the polynomial  $\frac{t^8 - 3t^7 + 2t^5 - 6t^2}{t^2}$  is
 

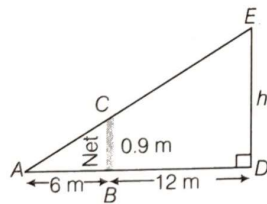
(a) 4	(b) 6
(c) 3	(d) 2
8. If 2 and 3 are zeroes of polynomial  $3x^2 - 2kx + 2m$ , then the values of  $k$  and  $m$  are
 

(a) $9, \frac{7}{2}$	(b) 7, 9
(c) $9, \frac{15}{2}$	(d) None of these
9. In the given figure,  $DE \parallel BC$ . If  $AD = 3$  cm,  $DB = 4$  cm and  $AE = 6$  cm. Then, the value of  $EC$  is



- (a) 8 cm (b) 9 cm  
(c) 7 cm (d) 5 cm

10. In  $\triangle ABC$  and  $\triangle DEF$ ,  $\angle B = \angle E$ ,  $\angle F = \angle C$  and  $AB = 3DE$ , then both triangles will be  
 (a) congruent but not similar  
 (b) similar but not congruent  
 (c) neither congruent nor similar  
 (d) both congruent and similar
11. In  $\triangle ABC$ ,  $D$  and  $E$  are points on the sides  $AB$  and  $AC$  respectively, such that  $DE \parallel BC$ . If  $AD = 4x - 3$ ,  $AE = 8x - 7$ ,  $BD = 3x - 1$  and  $CE = 5x - 3$ , then the value of  $x$  is  
 (a) 1 (b) 2  
 (c) 3 (d) 4
12. The value of the height ' $h$ ' in the adjoining figure, at which the tennis ball must be hit, so that it will just pass over the net and land 6 m away from the base of the net.



- (a) 0.18 m (b) 10.8 cm  
(c) 2.7 m (d) None of these

13. If  $\sin \theta = \operatorname{cosec} \theta$  and  $0 \leq \theta \leq \pi$ , then the value of  $\theta$  is  
 (a)  $\pi$  (b)  $\frac{\pi}{2}$   
 (c)  $\frac{\pi}{4}$  (d)  $0^\circ$

14. If  $\sin \theta = \frac{a}{b}$ , then  $\cos \theta$  is equal to

- (a)  $\frac{b}{\sqrt{b^2 - a^2}}$  (b)  $\frac{b}{a}$   
 (c)  $\frac{\sqrt{b^2 - a^2}}{b}$  (d)  $\frac{a}{\sqrt{b^2 - a^2}}$

15. If  $\tan \theta + \sin \theta = m$  and  $\tan \theta - \sin \theta = n$ , then  $m^2 - n^2$  is equal to

- (a)  $\sqrt{mn}$  (b)  $\sqrt{\frac{m}{n}}$   
 (c)  $4\sqrt{mn}$  (d) None of these

16. If  $\sin A = \frac{1}{2}$ , then the value of  $\cot A$  is

- (a)  $\sqrt{3}$  (b)  $\frac{1}{\sqrt{3}}$   
 (c)  $\frac{\sqrt{3}}{2}$  (d) 1

17. The probability that a non-leap year selected at random will contains 53 Sunday is

- (a)  $\frac{1}{7}$  (b)  $\frac{2}{7}$   
 (c)  $\frac{3}{7}$  (d)  $\frac{5}{7}$

18. Which of the following cannot be the probability of an event?

- (a)  $\frac{2}{3}$  (b) -15  
 (c) 15% (d) 0.7

19. The probability of getting a bad egg in a lot of 400 is 0.035. The number of bad eggs in the lot is

- (a) 7 (b) 14  
 (c) 21 (d) 28

20. If  $P(E) = 0.05$  then, the probability of 'not  $E$ ' is

- (a) 0.05 (b) 1.05  
 (c) 0.85 (d) 0.95

**Assertion-Reasoning MCQs**

For question numbers 21 to 25, two statements are given-one labelled **Assertion (A)** and the other labelled **Reason (R)**. Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false and R is true.

**21. Assertion** If  $\text{LCM}\{p, q\} = 30$  HCF

$\{p, q\} = 5$ , then  $p \cdot q = 150$ .

**Reason**  $\text{LCM of } (a, b) \times \text{HCF of } (a, b) = a \cdot b$ .

**22. Assertion**  $x^2 + 4x + 5$  has two zeroes.

**Reason** A quadratic polynomial can have atmost two zeroes.

**23. Assertion** In a rhombus of side 15 cm, one of the diagonals is 20 cm long. The length of the  $10\sqrt{6}$  cm.

**Reason** The sum of the squares of the sides of a rhombus is equal to the sum of the squares of its diagonals.

**24. Assertion** In a right angled triangle, if

$\cos \theta = \frac{1}{2}$  and  $\sin \theta = \frac{\sqrt{3}}{2}$ , then  $\tan \theta = \sqrt{3}$ .

**Reason**  $\tan \theta = \frac{\sin \theta}{\cos \theta}$

**25. Assertion** If a die is thrown, the probability of getting a number less than 3 and greater than 2 is zero.

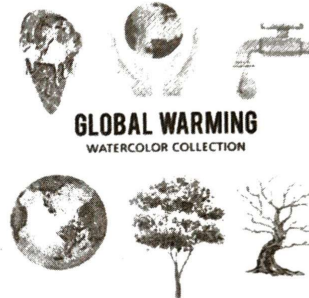
**Reason** Probability of an impossible event is zero.

**Case Based MCQs**

**Direction** Answer the questions from 26-30 based on the following case.

Student of class-10 undertake to work for the campaign "STOP GLOBAL WARMING".

Team A took the region under the coordinates (2, 4), (5, y), (x, 8) and (4, 7) and Team B took the region under the coordinates  $(-1, \frac{3}{2})$ , (2, 4),  $(5, \frac{3}{2})$  and (2, -1).



Based on the above information, answer the following questions.

**26.** If region covered by Team A forms a parallelogram, where the coordinates are taken in the given order, then

- (a)  $x=8, y=4$
- (b)  $x=7, y=5$
- (c)  $x=2, y=4$
- (d)  $x=4, y=2$

**27.** Perimeter of the region covered by Team A is

- (a)  $2\sqrt{10}$  units
- (b)  $\sqrt{13}$  units
- (c)  $(\sqrt{10} + \sqrt{13})$  units
- (d) None of these

**28.** If the coordinates of region covered by Team B, taken in the same order forms a quadrilateral, then the length of each of its diagonals is

- (a)  $4\sqrt{2}$  units,  $2\sqrt{2}$  units
- (b)  $6\sqrt{2}$  units,  $\sqrt{2}$  units
- (c)  $3\sqrt{2}$  units,  $2\sqrt{2}$  units
- (d) None of these

29. If region covered by Team B forms a rhombus, where the coordinates are taken in given order, then the perimeter of this region is

- (a)  $\sqrt{61}$  units
- (b)  $2\sqrt{61}$  units
- (c)  $3\sqrt{61}$  units
- (d)  $4\sqrt{61}$  units

30. The coordinates of the point which divides the line joining the points  $P(x_1, y_1)$  and  $Q(x_2, y_2)$  internally in the ratio  $m : n$  is

- (a)  $\left(\frac{mx_2 + ny_2}{m+n}, \frac{mx_1 + ny_1}{m+n}\right)$
- (b)  $\left(\frac{mx_1 + ny_1}{m+n}, \frac{mx_2 + ny_2}{m+n}\right)$
- (c)  $\left(\frac{mx_2 + nx_1}{m+n}, \frac{my_2 + ny_1}{m+n}\right)$

(d) None of the above

**Direction** Answer the questions from 31-35 based on the following case.

From a grocery shop Priyanka bought 4 kg of rice and 6 kg of flour for ₹1700 and Charu bought 6 kg of rice and 4 kg of flour for ₹1800. Consider the price of one kg of rice and that of one kg of flour be ₹ $x$  and ₹ $y$  respectively.



Based on the above information, answer the following questions.

31. Represent the situation faced by Priyanka, algebraically.

- (a)  $4x + 6y = 1700$
- (b)  $6x + 4y = 1700$
- (c)  $4x - 6y = 850$
- (d)  $6x - 4y = 850$

32. Represent the situation faced by Charu, algebraically.

- (a)  $4x + 6y = 900$
- (b)  $6x + 4y = 1800$
- (c)  $2x - 3y = 900$
- (d)  $3x - 2y = 900$

33. The price of one kg of flour is

- (a) ₹ 80
- (b) ₹ 100
- (c) ₹ 150
- (d) ₹ 200

34. The price of one kg of rice is

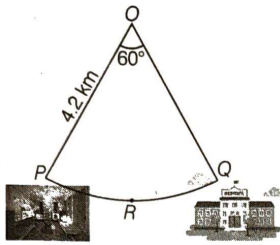
- (a) ₹ 80
- (b) ₹ 100
- (c) ₹ 150
- (d) ₹ 200

35. This system of linear equations represented by above situation, has

- (a) unique solution
- (b) no solution
- (c) infinitely many solutions
- (d) None of the above

**Direction** Answer the questions from 36-40 based on the following case.

Shivam has his hostel located at  $P$  and his school located at  $Q$ . Shivam drives his motorbike three day in a week and rides his car in the remaining 3 days, to go to his school and back to hostel.  $POQ$  is a sector of a circle with centre  $O$ , central angle  $60^\circ$  and radius 4.2 km. Path  $POQ$  is the route for driving by motorbike and path  $PRQ$  is for car only.



- 36.** The total distance travelled by Shivam through the motorbike in a week to go to school is
- (a) 50.4 km                      (b) 55 km  
 (c) 56.4 km                      (d) 48 km
- 37.** The total distance travelled by Shivam through the car in a week to go to school is
- (a) 30.17 km  
 (b) 26.4 km  
 (c) 28 km  
 (d) 29.4 km

- 38.** The area of sector  $POQ$  is
- (a)  $17.88 \text{ km}^2$   
 (b)  $18.24 \text{ km}^2$   
 (c)  $19.24 \text{ km}^2$   
 (d)  $12.06 \text{ km}^2$
- 39.** If the cost of fuel for the motorbike is ₹ 10 per km, then the total cost of fuel used in a week in going school is
- (a) ₹ 520  
 (b) ₹ 500  
 (c) ₹ 480  
 (d) ₹ 600
- 40.** If the angle of sector changed from  $60^\circ$  to  $90^\circ$ , then the total length of the available paths is
- (a) 18 km  
 (b) 17.14 km  
 (c) 14 km  
 (d) None of the above

# PRACTICE PAPER 1

## OMRSHEET

### Instructions

- Use black or blue ball point pens and avoid gel pens and fountain pens for filling the sheets
- Darken the bubbles completely. Don't put a tick mark or a cross mark half-filled or over-filled bubbles will not be read by the software.



- Do not write anything on the OMR Sheet
- Multiple markings are invalid

1	(a)	(b)	(c)	(d)
2	(a)	(b)	(c)	(d)
3	(a)	(b)	(c)	(d)
4	(a)	(b)	(c)	(d)
5	(a)	(b)	(c)	(d)
6	(a)	(b)	(c)	(d)
7	(a)	(b)	(c)	(d)
8	(a)	(b)	(c)	(d)
9	(a)	(b)	(c)	(d)
10	(a)	(b)	(c)	(d)
11	(a)	(b)	(c)	(d)
12	(a)	(b)	(c)	(d)
13	(a)	(b)	(c)	(d)
14	(a)	(b)	(c)	(d)
15	(a)	(b)	(c)	(d)
16	(a)	(b)	(c)	(d)
17	(a)	(b)	(c)	(d)
18	(a)	(b)	(c)	(d)
19	(a)	(b)	(c)	(d)
20	(a)	(b)	(c)	(d)

21	(a)	(b)	(c)	(d)
22	(a)	(b)	(c)	(d)
23	(a)	(b)	(c)	(d)
24	(a)	(b)	(c)	(d)
25	(a)	(b)	(c)	(d)
26	(a)	(b)	(c)	(d)
27	(a)	(b)	(c)	(d)
28	(a)	(b)	(c)	(d)
29	(a)	(b)	(c)	(d)
30	(a)	(b)	(c)	(d)
31	(a)	(b)	(c)	(d)
32	(a)	(b)	(c)	(d)
33	(a)	(b)	(c)	(d)
34	(a)	(b)	(c)	(d)
35	(a)	(b)	(c)	(d)
36	(a)	(b)	(c)	(d)
37	(a)	(b)	(c)	(d)
38	(a)	(b)	(c)	(d)
39	(a)	(b)	(c)	(d)
40	(a)	(b)	(c)	(d)

Students should not write anything below this line

SIGNATURE OF EXAMINER WITH DATE

MARKS SCORED