Class 10 Mathematics
Comprehensive Practice Questions

Based on the Latest Exam Pattern

General Instructions:

i. This practice paper contains 15 questions divided into four sections: A, B, C, and D.

ii. **Section A** comprises 5 multiple-choice questions of 1 mark each.

iii. **Section B** comprises 4 short answer questions of 2 marks each.

iv. **Section C** comprises 3 short answer questions of 3 marks each.

v. **Section D** comprises 3 long answer questions of 5 marks each.

vi. All questions are compulsory. Internal choices are provided in some questions.

vii. Use of calculators is not permitted.

SECTION A
(Each question carries 1 mark)

1. The HCF and LCM of 12, 21, and 15 respectively are:

(a) 3, 140
(b) 12, 420
(c) 3, 420
(d) 420, 3

2. If α and β are the zeroes of the quadratic polynomial $p(x) = x^2 - 2x - 8$, then the value of $\alpha + \beta$ is:

(a) -2
(b) 2
(c) 8
(d) -8

3. The distance between the points $A(2, 3)$ and $B(4, 1)$ is:

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

4. The value of $\sin^2 30^\circ + \cos^2 30^\circ$ is:

(a) 0
(b) $\frac{1}{2}$

(c) 1

(d) 2

5. A die is thrown once. The probability of getting a prime number is:

(a) $\frac{1}{3}$

(b) $\frac{1}{2}$

(c) $\frac{2}{3}$

(d) $\frac{1}{6}$

SECTION B

(Each question carries 2 marks)

6. Prove that $3 + 2\sqrt{5}$ is an irrational number, given that $\sqrt{5}$ is an irrational number.

7. Find a quadratic polynomial whose zeroes are 4 and -2.

8. Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.

9. Find the area of a sector of a circle with radius 6 cm if the angle of the sector is $60°$. (Use $\pi = \frac{22}{7}$)

SECTION C

(Each question carries 3 marks)

10. Solve the following pair of linear equations by the substitution method:

$$2x + 3y = 11$$
$$2x - 4y = -24$$

Hence, find the value of 'm' for which $y = mx + 3$.

11. Find the sum of the first 15 multiples of 8.

12. Prove the following trigonometric identity:

$$\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{1}{\sec\theta - \tan\theta}$$

SECTION D

(Each question carries 5 marks)

13. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the original speed of the train.

14. The angle of elevation of the top of a building from the foot of a tower is $30°$ and the angle of elevation of the top of the tower from the foot of the building is $60°$. If the tower is 50 m high, find the height of the building.

Daily Income (in ¤)	100 - 120	120 - 140	140 - 160	160 - 180	180 - 200
Number of Workers	12	14	8	6	10

15. The following distribution gives the daily income of 50 workers of a factory. Find the mean daily income of the workers using an appropriate method.