# CBSE 2022 Maths Standard (Term 2) — Set 2

English Medium

Time Allowed: 3 Hours | Maximum Marks: 80

General Instructions:

1. This question paper contains 38 questions. All questions are compulsory.
2. Section A has 20 MCQs carrying 1 mark each.
3. Section B has 6 questions carrying 2 marks each.
4. Section C has 6 questions carrying 3 marks each.
5. Section D has 4 questions carrying 5 marks each.
6. Section E has 3 case-study based questions carrying 4 marks each.
7. Draw neat figures wherever required.

## Section A

### Multiple Choice Questions (1 mark each)

Q.1 [1 mark]

Solve the quadratic equation x^2 + 2*sqrt(2)*x - 6 = 0 for x.

Q.2 [1 mark]

Which term of the A.P. -11/2, -3, -1/2, ... is 49/2?

OR

Q.2 [1 mark]

Find a and b so that the numbers a, 7, b, 23 are in A.P.

Q.3 [1 mark]

A solid piece of metal in the form of a cuboid of dimensions 11 cm x 7 cm x 7 cm is melted to form 'n' number of solid spheres of radii 7/2 cm each. Find the value of n.

Q.4 [1 mark]

AB is the diameter of a circle centered at O. BC is tangent to the circle at B. If OP bisects the chord AD and angle AOP = 60 degrees, find the measure of angle C.

OR

Q.4 [1 mark]

XAY is a tangent to the circle centered at O. If angle ABO = 40 degrees, find the measure of angle BAY and angle AOB.

Q.5 [1 mark]

If the mode of the following frequency distribution is 55, find the value of x.

Class: 0-15, 15-30, 30-45, 45-60, 60-75, 75-90
Frequency: 10, 7, x, 15, 10, 12

Q.6 [1 mark]

Find the sum of the first 20 terms of an A.P. whose nth term is given as a_n = 5 - 2n.

Q.8 [1 mark]

AB is a tower of height 50 m. A man standing on its top observes two cars on the opposite sides of the tower with angles of depression 30 degrees and 45 degrees respectively. Find the distance between the two cars.

Q.9 [1 mark]

The mean of the following frequency distribution is 25. Find the value of f.

Class: 0-10, 10-20, 20-30, 30-40, 40-50
Frequency: 5, 18, 15, f, 6

OR

Q.9 [1 mark]

Find the mean of the following data using assumed mean method.

Class: 0-5, 5-10, 10-15, 15-20, 20-25
Frequency: 8, 7, 10, 13, 12

Q.10 [1 mark]

Heights of 50 students of class X of a school are recorded and the following data is obtained.

Height (in cm): 130-135, 135-140, 140-145, 145-150, 150-155, 155-160
Number of students: 4, 11, 12, 7, 10, 6

Find the median height of the students.

Q.11 [1 mark]

PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q meet at a point T. Find the length of TP.

Q.12 [1 mark]

A 2-digit number is such that the product of its digits is 24. If 18 is subtracted from the number, the digits interchange their places. Find the number.

OR

Q.12 [1 mark]

The difference of the squares of two numbers is 180. The square of the smaller number is 8 times the greater number. Find the two numbers.

Q.13(a) [1 mark]

Case Study - Kite Festival: A man at point C is flying two kites A and B. The angles of elevation of kites A and B from C are 30 degrees and 60 degrees respectively. If AD = 50 m and BE = 60 m (where D and E are the feet of perpendiculars from A and B to the ground), find the lengths of strings used for kites A and B (assume strings are taut/straight).

Q.13(b) [1 mark]

Case Study - Kite Festival: A man at point C is flying two kites A and B. The angles of elevation of kites A and B from C are 30 degrees and 60 degrees respectively. AD = 50 m and BE = 60 m (heights of kites from ground). D and E are points on the ground on opposite sides of C. Find the distance 'd' between the two kites A and B.

Q.14(a) [1 mark]

Case Study - Circus Tent: A tent is in the shape of a cylinder surmounted by a conical top. The height and diameter of the cylindrical part are 9 m and 30 m respectively, and the height of the conical part is 8 m with the same diameter as the cylindrical part. Find the area of the canvas used in making the tent.

Q.14(b) [1 mark]

Case Study - Circus Tent: A tent is in the shape of a cylinder surmounted by a conical top. The canvas area of the tent is 1650 sq m. Find the cost of the canvas bought at the rate of Rs 200 per sq m, if 30 sq m of canvas was wasted during stitching.