

CLASS 9 · HOTS · OLYMPIAD PREPARATION · DPP SHEET

Chapter 20: HOTS Questions for Class 9

Daily practice problems: 10 questions with an answer key

Try every question on your own first. The answer key is on the last page.

1. If $x = 2 + \sqrt{3}$, find $x + \frac{1}{x}$.
2. If $x + \frac{1}{x} = 5$, find $x^2 + \frac{1}{x^2}$.
3. If $x + \frac{1}{x} = 3$, find $x^3 + \frac{1}{x^3}$.
4. Factorise $x^3 - 3x^2 - 4x + 12$.
5. In triangle ABC, angle A is 50° . The bisectors of angles B and C meet at O. Find angle BOC.
6. In a parallelogram ABCD, angle A is $(3x + 5)^\circ$ and angle B is $(2x + 15)^\circ$. Find angle A.
7. A chord of length 24 cm is drawn in a circle of radius 13 cm. Find its distance from the centre.
8. The sides of a triangle are 13 cm, 14 cm and 15 cm. Find the height on the side of length 15 cm.
9. A cone has radius 6 cm and slant height 10 cm. Find its volume in terms of π .
10. The mean of 8 numbers is 15. One number, 9, is replaced by 25. Find the new mean.

Answer Key

1. 4 (since $\frac{1}{x} = 2 - \sqrt{3}$).
2. 23.
3. 18.
4. $(x - 3)(x - 2)(x + 2)$.
5. 115° .
6. 101° ($x = 32$).
7. 5 cm.
8. 11.2 cm (the area is 84 square cm).
9. 96π cubic cm (the height is 8 cm).
10. 17.

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