

CLASS 10 · HOTS · OLYMPIAD PREPARATION · DPP SHEET

Chapter 4: HOTS: Quadratic Equations (Class 10)

Daily practice problems: 8 questions with an answer key

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

1. Solve $\frac{1}{x} - \frac{1}{x-2} = 3$, where $x \neq 0, 2$. Give the answer in surd form.
2. Find k if $(k-12)x^2 + 2(k-12)x + 2 = 0$ has equal roots.
3. A train travels 480 km at a uniform speed. If the speed had been 8 km/h more, the journey would have taken 3 hours less. Find the speed.
4. Two pipes together fill a tank in 12 hours. One pipe alone takes 10 hours less than the other. Find the time each takes alone.
5. The sum of the squares of two consecutive positive odd numbers is 394. Find the numbers.
6. If -5 is a root of $2x^2 + px - 15 = 0$ and the equation $p(x^2 + x) + k = 0$ has equal roots, find k .
7. The base of a triangle is 4 cm more than its height and its area is 48 square cm. Find the base and the height.
8. Does $2x^2 - 4x + 3 = 0$ have real roots?

Answer Key

1. $x = 1 \pm \frac{\sqrt{3}}{3}$, that is $x = \frac{3 \pm \sqrt{3}}{3}$.
2. $k = 14$ (the value $k = 12$ is rejected because then the equation is not quadratic).
3. 32 km/h.
4. 20 hours and 30 hours.
5. 13 and 15.
6. $k = \frac{7}{4}$ (here $p = 7$).
7. Base 12 cm and height 8 cm.
8. No ($D = 16 - 24 = -8 < 0$).

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