

Quadratic Equations: 5 Intriguing Questions

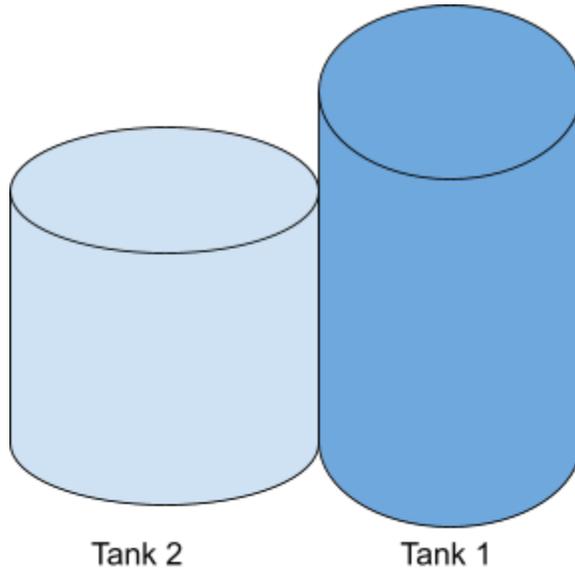
CBSE Grade X Mathematics

Instructions:

1. The set contains 5 questions.
2. Go through the questions properly.
3. Attempt all the questions.
4. Each question contains four options.
5. Only one of the options is correct.

1.	<p>Find the possible number of integer values for which $(x^2 - 9x + 19)^{(x^2 - 15x + 56)} = 1$.</p> <p>A. 4 B. 6 C. 3 D. 2</p>
2.	<p>Train A leaves from Bangalore at 05:00 PM to reach Delhi, and train B leaves from Delhi at 05:15 PM to reach Bangalore. The product of their average speeds is 36,000 sq. km/hr. The trains cross each other at 12:00 AM. If the distance between Bangalore and Delhi is 2,200 km, find the speed of train A and B, respectively. [Assume that the trains are running at uniform speed.]</p> <p>A. 180 kmph, 200 kmph B. 100 kmph, 360 kmph C. 160 kmph, 225 kmph D. Can't be determined</p>
3.	<p>If α and β are the zeroes of the polynomial $x^2 + ax + b$, and $\alpha^4 + \beta^4 = \alpha^2 \beta^2$, find $\alpha^6 + \beta^6$.</p> <p>A. 1 B. 0 C. 2 D. 3</p>

There are two cylindrical tanks, one completely filled with acid while the other one is empty. The height of Tank 1 is 10 m and the height of Tank 2 is 8 m. When the two tanks are connected, acid flows from Tank 1 to Tank 2 till the level of the acid in both the tanks reaches $\frac{40}{13}$ m. The radius of Tank 2 is 2 m more than that of Tank 1. What is the radius of Tank 1 and Tank 2, respectively?



4.

- A. 6 m, 8 m
- B. 10 m, 12 m
- C. 4 m, 6 m
- D. 13 m, 15 m

If r and s are the roots of the equation $x^2 - p(x + 2) - q = 0$, then the value of $\frac{r^2+2r+1}{r^2+2r+q} + \frac{s^2+2s+1}{s^2+2s+q}$ is:

5.

- A. 1
- B. 2
- C. 3
- D. 0