

Solution of the day/Sep-5, 2018

6th Class

➤ **Mathematics:**

Sol. Let the numbers be $2x$, $3x$ and $5x$. Then, $4x^2 + 9x^2 + 25x^2 = 608$ or $38x^2 = 608$

$$\therefore x^2 = \frac{608}{38} = 16 \text{ or } x = 4 \text{ So, the numbers are 8, 12 and 20.}$$

➤ **Physics:** Ans: (D)

➤ **Chemistry:** Ans: (C)

➤ **Biology:** Ans: (D)

7th Class

➤ **Mathematics:**

Sol: $7x - 3y + 2z$

$2x + 7y - 8z$

$$\begin{array}{r} - \quad - \quad + \\ \hline 5x - 10y + 10z \end{array}$$

➤ **Physics:** Ans: (A)

➤ **Chemistry:** Ans: (D)

➤ **Biology:** Ans: (A)

8th class

➤ **Mathematics:**

Sol: Given, $5 \tan \theta = 4 \Rightarrow \tan \theta = \frac{4}{5}$

$$\text{Now, } \frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 2 \cos \theta} = \frac{(5 \sin \theta - 3 \cos \theta) / \cos \theta}{(5 \sin \theta + 2 \cos \theta) / \cos \theta} = \frac{5 \tan \theta - 3}{5 \tan \theta + 2} = \frac{5 \left(\frac{4}{5}\right) - 3}{5 \left(\frac{4}{5}\right) + 2} = \frac{4 - 3}{4 + 2} = \frac{1}{6}$$

➤ **Physics:**

Sol: Initial position of the car at position A = $u = 10 \text{ ms}^{-1}$

Final velocity of the car at position B = $v = 20 \text{ ms}^{-1}$

The change in velocity of the car, $\Delta v = v - u = 20\text{ms}^{-1} - 10\text{ms}^{-1} = 10\text{ms}^{-1}$

The time taken for the car to move from A to B, $\Delta t = 5\text{s}$

$$\therefore \text{Acceleration of the car, } a = \frac{\Delta v}{\Delta t} = \frac{10\text{ms}^{-1}}{5\text{s}} = 2\text{ms}^{-2}$$

➤ **Chemistry:** Ans: (D)

➤ **Biology:** Ans: (A)

9th Class

➤ **Mathematics:**

$$\text{Sol: (A) G.E} = \frac{\sec \theta + \tan \theta - (\sec^2 \theta - \tan^2 \theta)}{\tan \theta - \sec \theta + 1} = \frac{(\sec \theta + \tan \theta)(1 - \sec \theta + \tan \theta)}{\tan \theta - \sec \theta + 1} = \sec \theta + \tan \theta$$

➤ **Physics:**

Ans: An apple falling from a tree, a ball dropped from the top of a building

➤ **Chemistry:** Ans: (C)

➤ **Biology:** Ans: (B)

10th class

➤ **Mathematics:**

$$\text{Sol: } \sin \theta = \frac{BC}{AC} = \frac{3}{4}$$

By Pythagoras theorem,

$$\text{L.H.S} = \sqrt{\frac{\sec^2 \theta - \cot^2 \theta}{\sec^2 \theta - 1}}$$

$$= \sqrt{\frac{\left(\frac{4k}{3k}\right)^2 - \left(\frac{\sqrt{7}k}{3k}\right)^2}{\left(\frac{4k}{\sqrt{7}k}\right)^2 - 1}} = \sqrt{\frac{\frac{16}{9} - \frac{7}{9}}{\frac{16}{7} - 1}} = \frac{\sqrt{\frac{9}{9}}}{\sqrt{\frac{9}{7}}} = \sqrt{\frac{7}{9}} = \frac{\sqrt{7}}{3} = \text{R.H.S}$$

➤ **Physics:** Ans: (A)

➤ **Chemistry:** Ans: (B)

➤ **Biology:** Ans: (A)

➤ **Reasoning :** Ans: (C)