

Solution of the day/Sep-26, 2018

6th Class

- **Mathematics:** Ans: $1 - x - 2x^2$
- **Physics:** Ans: (B)
- **Chemistry:** Ans: True
- **Biology:** Ans: (D)

7th Class

- **Mathematics:**
Ans: $8m^2 - 11m + 10$
- **Physics:** Ans: (B,C,D)
- **Chemistry:** Ans: (C)
- **Biology:** Ans: (A)

8th class

- **Mathematics:**

Sol: $x^2 + y^2 = (a \sin \theta + b \cos \theta)^2 + (a \cos \theta - b \sin \theta)^2$

$$= (a^2 \sin^2 \theta + b^2 \cos^2 \theta + 2ab \sin \theta \cos \theta) + (a^2 \cos^2 \theta + b^2 \sin^2 \theta - 2ab \sin \theta \cos \theta)$$
$$= a^2 \sin^2 \theta + b^2 \cos^2 \theta + a^2 \cos^2 \theta + b^2 \sin^2 \theta$$
$$= a^2 (\sin^2 \theta + \cos^2 \theta) + b^2 (\sin^2 \theta + \cos^2 \theta)$$
$$= a^2 + b^2 \quad [\because \sin^2 \theta + \cos^2 \theta = 1]$$

Hence, $x^2 + y^2 = a^2 + b^2$.

- **Physics:** Ans: (B)
- **Chemistry:** Ans: (i)- c, (ii)- d, (iii)- b, (iv)- a
- **Biology:** Ans: (B)

9th Class

➤ Mathematics:

$$\text{Sol: } L.H.S = \frac{\sec \theta - 1}{\sec \theta + 1} = \frac{\frac{1}{\cos \theta} - 1}{\frac{1}{\cos \theta} + 1} \quad \left(\because \sec \theta = \frac{1}{\cos \theta} \right)$$

$$\begin{aligned} \frac{\frac{1 - \cos \theta}{\cos \theta}}{\frac{1 + \cos \theta}{\cos \theta}} &= \frac{1 - \cos \theta}{1 + \cos \theta} = R.H.S = \frac{1 - \cos \theta}{1 + \cos \theta} \times \frac{1 + \cos \theta}{1 + \cos \theta} = \frac{(1 - \cos \theta)(1 + \cos \theta)}{1 + \cos^2 \theta} = \frac{1 - \cos^2 \theta}{(1 + \cos \theta)^2} \\ &= \frac{\sin^2 \theta}{(1 + \cos \theta)^2} = \left(\frac{\sin \theta}{1 + \cos \theta} \right)^2 = R.H.S \end{aligned}$$

➤ **Physics:** Ans: (B)

➤ **Chemistry:** Ans: (D)

➤ **Biology:** Ans: (A)

10th class

➤ Mathematics:

$$\text{Sol: } L.H.S = \frac{\tan 60^\circ - \tan 30^\circ}{1 + \tan 60^\circ \tan 30^\circ} = \frac{\left(\sqrt{3} - \frac{1}{\sqrt{3}} \right)}{1 + \sqrt{3} \times \frac{1}{\sqrt{3}}} = \frac{\frac{3-1}{\sqrt{3}}}{2} = \frac{2}{2\sqrt{3}} = \frac{1}{\sqrt{3}}$$

$$\text{Also R.H.S,} = \tan 30^\circ = \frac{1}{\sqrt{3}} \quad \text{Hence, L.H.S.} = \text{R.H.S}$$

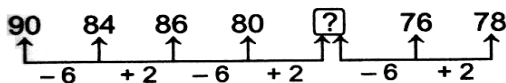
➤ **Physics:** Ans: (A)

➤ **Chemistry:** Ans: (B)

➤ **Biology:** Ans: (D)

➤ Reasoning :

Sol : (B)



$$\therefore ? - 6 = 76 \quad \Rightarrow ? = 82$$

