

Solution of the day/ Aug 30, 2018

6th Class

➤ **Mathematics:**

$$\text{Sol: } \frac{-26}{3} \times x = \frac{16}{3}$$

$$x = \frac{-16}{26}$$

$$x = \frac{-8}{13}$$

➤ **Physics:** Ans: (B)

➤ **Chemistry:** Ans: Chemical

➤ **Biology:** Ans: (C) An animals which eats only flesh is called carnivore. Option (A), (B), (C), and (D) on unscrambling give the terms producer, herbivore, carnivore and omnivore respectively.

7th Class

➤ **Mathematics:**

$$\text{Sol: } 2^{x-2} = 5^{2-x}$$

$$2^{x-2} = \frac{1}{5^{2-x}}$$

$$10^{x-2} = 1$$

$$\frac{10^x}{10^2} = 1$$

$$10^x = 10^2$$

$$x = 2$$

➤ **Physics:**

Sol:

(i) Given, L.C. of vernier calipers = 0.05 mm.

1 M.S.D. of the V.C. = 0.5 mm

Then the formula for least count, $L.C = \frac{1M.S.D.}{N}$

This means, $N = \frac{1M.S.D.}{L.C}$

From the above formula, find the number of V.S.D., (N)

(ii) $N = 10$

➤ **Chemistry:** Ans: (C)

➤ **Biology:** Ans: (D)

8th class

➤ Mathematics:

Sol : $\sin x \cdot \cos x \left[\frac{\cos x}{\sin x} - \frac{\sin x}{\cos x} \right]$
 $= \cos^2 x - \sin^2 x$
 $= \cos 2x$

➤ Physics:

Sol: Given that the length of the seconds pendulum $L_1 = 80\text{cm}$.

Time period of the pendulum = $T_1 = 2\text{sec}$

If the length changes to L_2 , Time period $T_2 = 1.6 \text{ sec}$

We know that $\frac{L_1}{T_1^2} = \frac{L_2}{T_2^2}$

$$L_2 = L_1 \times \frac{T_2^2}{T_1^2} = 80 \times \frac{(1.6)^2}{2^2}$$

$$L_2 = 51.2 \text{ cm}$$



➤ **Chemistry:** Ans: (D)

➤ **Biology:** Ans: (D)

9th Class

➤ Mathematics:

Sol : α, β are supplementary angles, ie $\alpha + \beta = 180^\circ$

$$\therefore \sin^2 \alpha + \cos^2 \beta = \sin^2 \alpha + \cos^2 (180^\circ - \alpha) = \sin^2 \alpha + \cos^2 \alpha = 1$$

➤ **Physics:** Ans: (C)

➤ **Chemistry:** Ans: (A)

➤ **Biology:** Ans: (C)

10th class

➤ Mathematics:

$$\text{Sol: } (\sin^2 \theta)^3 + (\cos^2 \theta)^3 + 3 \sin^2 \theta \cos^2 \theta (\sin^2 \theta + \cos^2 \theta)$$

$$(\sin^2 \theta)^3 + (\cos^2 \theta)^3 = (1)^3 = 1$$

(or) put $\theta = 0^\circ$ by verify the options

➤ Physics:

Sol: Specific heat (C) = $0.092 \text{ cal g}^{-1} \text{ }^\circ\text{C}^{-1}$

$$\frac{0.092}{9 \times \text{ }^\circ\text{C}} = ?$$

$$J \text{ kg}^{-1} \text{ K}^{-1}$$

$$1 \text{ cal} = 4.2 J \text{ ----- (1)}$$

$$1 \text{ g} = \frac{1}{1000} \text{ kg} \text{ ----- (2)}$$

$$\Delta t \text{ }^\circ\text{C} = \Delta T \text{ K} \text{ ----- (3)}$$

Substituting (1), (2) and (3) on L.H.S of (A) we get

$$\frac{0.092 \times 4.2 J}{\frac{1}{1000} \text{ kg} \times \text{K}} = 0.092 \times 4.2 \times 1000 J \text{ kg}^{-1} \text{ K}^{-1} = 386.4 J \text{ kg}^{-1} \text{ K}^{-1}$$

➤ Chemistry:

Sol: Paint is applied on iron articles to prevent them from rusting (corrosion).

➤ Biology: Ans: (C)

➤ Reasoning : Ans: (A)