

CCT Weekly Practice (Mathematics)

Participating for social causes

An NGO decides to involve students of class X to initiate a drive to make people aware of road etiquettes. As a part of the drive, a banner is created.

The shape of the banner that says “do not honk” is as shown in the figure.



Question 1:

The formula to calculate the perimeter of the banner is

- (a) $2(l + b)$
- (b) $2\pi rh + 2\pi r^2$
- (c) $\pi r + (2l + b)$
- (d) $2(l + b) + \pi r^2$

Question 2:

The total surface area of the banner is

- (a) 55860 cm^2
- (b) 70952 cm^2
- (c) 55880 cm^2
- (d) 70558 cm^2

Question 3:

If the total cost of the cardboard used per banner is Rs. 83.79. Then the rate per m^2 is:

- (a) Rs 25
- (b) Rs 15
- (c) Rs 35
- (d) Rs 45

Question 4:

Let us assume that the chalan for not wearing a seat belt is Rs 1000 first time and it increases by Rs. 50 each time after that in a month. If a driver is caught 10 times in a month for not wearing a seat belt. Calculate the total fine paid by him.

- (a) Rs 22500
- (b) Rs 12500
- (c) Rs 35000
- (d) Rs 12250

Question 5:

Three slogans were finalized and the number of banners made for each slogan is in A.P. If the total number of banners made is 90 and their product is 5130, then find the no. of banners for each type of slogan.

- (a) 7, 50, 33
- (b) 3, 30, 57
- (c) 5, 53, 32
- (d) 7, 50, 30

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Answers:- Participating for social causes

1. (c) perimeter of the banner = 3 sides of rectangle + Half of circumference = $\pi r + (2l + b)$

2. (a) total surface area of the banner = area of rectangle + half area of circle

$$= l \times b + \frac{\pi r^2}{2} = 196 \times 208 + \frac{22 \times 98 \times 98}{2 \times 7} = 55860 \text{ cm}^2$$

3. (b) Let cost@ per $\text{m}^2 = x$

$$\text{Area of 1 banner} = 55860 \text{ cm}^2 = 5.586 \text{ m}^2$$

Total cost of cardboard used per banner = Area of 1 banner $\times$ cost@ per m^2

$$83.79 = 5.586 \times x$$

$$\text{Hence cost@ per m}^2 = 83.79/5.586 = \text{Rs } 15$$

4. (d) According to challan conditions an AP is formed

The AP is 1000, 1050, 1100, ..., 10 terms

$a = 1000$, $d = 50$, $n = 10$; we need to find sum of 10 terms

$$S_n = \frac{n}{2} [2a + (n-1)d] = \frac{10}{2} [2000 + 9(50)] = 12250$$

Total fine paid by him = Rs 12250

5. (b) Let number of banners made for slogans be $a-d$, a , $a+d$

According to Question

$$\text{Total banners} = a-d+a+a+d = 90; a = 30$$

$$\text{Product of number of banners} = 5130$$

$$(a-d)a(a+d) = 5130$$

$$900-d^2 = 5130/30 = 171; d = \pm 27$$

Hence Number of slogans are 3, 30, 57 for $d = 27$ also for $d = -27$.

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