

KENDRIYA VIDYALAYA CRPF PALLIPURAM

OTBA WORKSHOP IN MATHEMATICS ON 23-11-2013

THEME I

VALUE BASED QUESTIONS

QUESTION 1

1 (a) To add to the aesthetic beauty, it was decided to make a circular flower bed at the centre of the park with diameter 10 feet. What will be the area of this flower bed in square metre. ($\pi = 3.14$)

(b) What are the values depicted in the construction of a garden

Ans :

$$\text{Radius} = d/2 = 10/2 = 5 \text{ feet} \quad (1/2)$$

$$\begin{aligned} \text{Area of flower bed} &= \pi r^2 \\ &= 3.14 \times 5 \times 5 = 78.5 \text{ sq. feet} \quad (1) \end{aligned}$$

$$\begin{aligned} &= (78.5 \times 0.3048 \times 0.3048) \text{ sq. metre} \\ &= 7.29 \text{ m}^2 \quad (1 1/2) \end{aligned}$$

(b) Value depicted are Team spirit, Love for nature, Dignity of labor. (2)

QUESTION 2

(a) What fraction of ground area is available to make the garden ? Convert it into % form (2)

(b) How much composite fertilizer (in Kg) is needed for the whole ground, if 100 sq. feet of garden requires 200 gm of fertilizer (2)

(c) What are the importance of using composite fertilizer (1)

Ans :

$$\begin{aligned} \text{(a) Area of ground} &= 4900 \\ \text{Area of 4 rooms} &= 1176 \\ \text{Area of garden} &= 4900 - 1176 \\ &= 3724 \text{ sq. feet} \quad (1/2) \\ \text{Fraction of garden area} &= \frac{3724}{4900} = \frac{931}{1225} = \frac{19}{25} \quad (1/2) \end{aligned}$$

$$\begin{aligned} \text{\% of garden area available} &= \frac{3724}{4900} \times 100 \% \\ &= 76 \% \quad (1) \end{aligned}$$

(b) Fertilizer required for 100 sq. feet of garden = 200 gms($\frac{1}{2}$)
 Area of the garden = 3724 sq. feet
 Fertilizer required for 3724 sq. feet = $3724 \times 200/100$ (1)
 $= 7448 \text{ gm}$
 $= 7.448 \text{ Kg}(\frac{1}{2})$

Value

- (1) Using composite fertilizer, we can improve the fertility of land
- (2) It would not make any soil pollution
- (3) It will improve the quality of plant products. (Any 1 value, 1 mark)

QUESTION 3

- (1) Two herbal plants are to be planted per 15 square metres. What will be the cost of purchasing these plants ?
- (2) What value is depicted from planting herbal plants? (5 marks)

Ans :

(1) Area of land available to make herbal garden =
 Area of waste land – 4 X area of room
 $= 70 \times 70 - 4 \times 21 \times 14$
 $= 3724 \text{ sq. feet}$
 $= 345.96 \text{ m}^2 \quad (1)$

Each unit be 15 m^2

The number units = $345.96/15$
 $= 23.064 \quad (1\frac{1}{2})$

This means 23 complete units

Cost of plants = $30 \times 23 \times 2$
 $= 1380 \quad (1)$

- (2) Love for nature
- Herbal medium is good for health
- Avoid air pollution
- Protecting heritage (2)

QUESTION 4

- (1) Find the quantity of the soil required for the construction of the garden (2)
- (2) Find the quantity of composite fertilizer required for constructing the garden (2)
- (3) What will you prefer for your garden, chemical fertilizer or composite manure? Why? (1)

Ans :

(1) Area of the garden = Area of the land – Area of 4 rooms.
 $= 70 \times 70 - 4 \times 29 \times 144$
 $= 3724 \text{ sq. feet}$

Quantity of soil for garden = Area of garden X 5/12 cubic feet.
 $= 3724 \times 5/12$
 $= 1552 \text{ cubic feet approximately}$

(2) Quantity of fertilizer = $2/5 \times 1552$
 $= 620.8 \text{ cubic feet}$

(3) We prefer to use composite for manure for our garden because it is pollution free and takes care for ecological balance.

QUESTION 5

A group of 10 students given the charge of clearing the circular garden. Find the area cleared by each students. What moral values are depicted here (3)

Ans :

$r = 17.5$

Area of circle = πr^2
 $= 22/7 \times 17.5^2$
 $= 962.5 \text{ sq. feet} \quad (1)$

Area cleared by each student = $962.5/10$
 $= 96.25 \text{ sq. feet} \quad (1/2)$

Clean the surroundings (1)

- (a) Find the probability of team members who succeeded in at least two attempts? (2)
- (b) Find the probability of team members who succeeded in more than two attempts? (1)
- (c) Find the percentage of successful students in their attempts? (1)
- (d) What value of the students attitude is depicted from the success rate? (1)

Ans :

(a) No:of students succeeded in at least two attempts=20+10=30 (1)

Total no:of students=50

$$\text{Required probability} = \frac{30}{50} = \frac{3}{5} \quad (1)$$

(b) No:of members succeeded in more than two attempts=15+5=20 ($\frac{1}{2}$)

$$\text{required probability} = \frac{20}{50} = \frac{2}{5} \quad (\frac{1}{2})$$

(c) No:of successful students=50-5=45

$$\text{percentage of successful students} = \frac{45}{50} \times 100 = 90\% \quad (1)$$

(d) Team spirit and desire for success. (1)

QUESTION 3

- (a) If each room is allotted to either 4 students or 2 teachers, how many rooms are required to accommodate them? (2)
- (b) What are the values the students learn from this action? (1)

Ans :

(a) Total no: of students=60

No:of rooms for students=60/4=15

Total no:of teachers=10

No:of rooms required=10/2=5 (1)

Total rooms required=15+5=20rooms. (1)

(b) Sharing, accommodative, love for fellow being.. (1)

QUESTION 4

what is the slant height of conical tent. After the trekking the trekkers visited villager's organic farm and went for bird watching and river crossing .what value is depicted here:

$$\pi r l = 550$$

$$l = \frac{550}{\pi r} = \frac{550}{\frac{22}{7} \times 7} = 25 \text{ m} \quad (1)$$

$$h = \sqrt{l^2 - r^2} = 14 \text{ m} \quad (1)$$

(ii) love for nature

Develop self confidence

Eco-friendly

Avoid air pollution..

QUESTION 5

what percent of students succeeded by facing more than two attempts ?

What is the moral value depicted here?

(a) Percentage of students successes by taking more than two attempts $= \frac{15}{50} \times \frac{10}{10} = 30\%$

(b) Persistence

QUESTION 6

(a) What is the significance of bonfire ? (2)

(b) What are the educational outcomes of the adventure trip? (1)

(c) What qualities will the students acquire attending such a trip? (1)

a) Team-work, enjoying as a team.

b) Learnt how to apply maths skills in real-life situation..

c) Sharing, making decisions, problem solving, empathy, removing fear, love for nature.

QUESTION 7

In a cleanliness drive, students of adventure camp joined together to clean the tent area. Participation of boys was 20 more than that by girls taking x as number of girls and y as number of boys

- (a) Form a linear equation (2)
- (b) Draw the graph of the linear equation (2)
- (c) What values are depicted here (1)

Ans :

(a) $Y = x + 20$

(b) Drawing the graph

(c) Value : Co-operation, happiness, sincerity , environmental protection

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