

Samim Shah

Section - II

Question # 7 (a)

Given Data:

Total seats in concert hall = 400

Occupied seats = 325

To Find:

Attendance at a percent of capacity = ?

The given expression is the question is as follows; total seat 400, occupied 325.

Hence attendance at a percent of capacity is,

$$\text{Attendance in percentage} = \frac{325}{400} \times 100$$

$$= \frac{325}{4}$$

$$\therefore 4 \overline{) 325.2} \begin{array}{r} 81.3 \\ 32 \\ \hline 5.2 \\ 52 \\ \hline \end{array}$$

$$\text{Attendance in percentage} = 81.3\%$$

Q # 7th part (b)

Given Data :

Case 1 : Persons = 30
weight of sugar = 40 kg
No. of days = 60 days

Case 2 : Persons = 80
weight of sugar = 320 kg of sugar
No. of days = ?

To Find :

Number of days 80 persons consume 320 kg of sugar = ?

Solution :

Persons	weight	No. of days
30	40 kg	60
80	320 kg	?

So, we have to take compound ratio
of 80:30 and 40:320

Then

$$10 : x = 80 \times 40 : 30 \times 320$$
$$= 3200 : 9600$$

Since, the ratios are equal, the product
of extremes is equal to the product of means

$$10 \times 9600 = x \times 3200$$

$$96000 = x \times 3200$$

$$\frac{96000}{3200} = x$$

$$\begin{array}{r} 80 \\ 40 \\ \hline 00 \\ 3200 \\ \hline 3200 \end{array}$$

$$\begin{array}{r} 320 \\ 30 \\ \hline 000 \\ 9600 \\ \hline 9600 \\ 10 \\ \hline 0000 \\ 96000 \\ \hline 96000 \end{array}$$

$$\frac{960}{32} = x$$

$$x = 30 \text{ days}$$

$$\begin{array}{r} 80 \\ 32 \overline{) 960} \\ \underline{960} \\ 0 \end{array}$$

Hence, 80 persons use 320 kg of sugar in 30 days.



Part (c)

Given Data:

Cow Travels South = 5 km

West = 3 km

North = 4 km

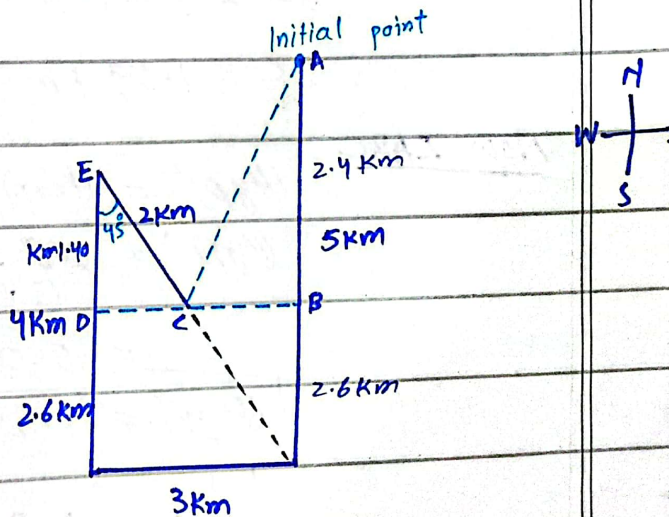
South-east = 2 km

To Find:

~~How~~ The distance from its initial point = ?

Solution

Given Diagram is,



The question hints that the cow goes to south-east it form an angle of 45° with its adjacent.

Hence, $\sin 45 = \frac{\text{opposite}}{\text{hypotenuse}}$

Q # 7

Part (d)

Given Data :

$$\text{Radius, } r = 10 \text{ cm}$$

$$\text{Height, } h = 36 \text{ cm}$$

To Find :

$$\text{Volume, } V = ?$$

Solution :

$$\text{Volume of cylinder} = \pi r^2 h$$

$$V = \pi r^2 h$$

$$= (3.14)(10)^2(36)$$

$$= (3.14)(100)(36)$$

$$= (3.14)(3600)$$

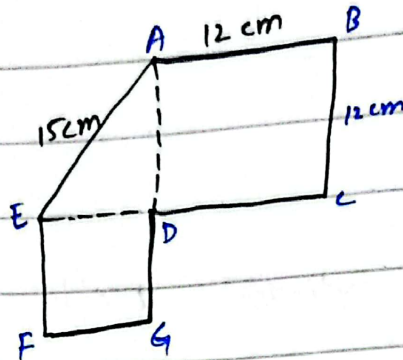
$$V = 11304 \text{ cm}^3$$

$$\begin{array}{r} \therefore \quad \begin{array}{r} 100 \\ 36 \\ \hline 3600 \\ \times 3.14 \\ \hline 1440 \\ 3600 \\ \hline 10800 \\ \hline 11304 \end{array} \end{array}$$

Question # 8 Part (c)

To Find: Total Area = ?
Perimeter = ?

Given Shape:



Area of ^{Square} ~~Rectangle~~ ABCD:

$$A = l \times w$$

$$A = 12 \times 12$$

$$A = 144 \text{ cm}^2$$

Area of Triangle LADE:

$$A = \frac{1}{2} \cdot b \times h \quad \text{--- (1)}$$

$$(\text{Hyp})^2 = (\text{Perp})^2 + (\text{Base})^2$$

$$(15)^2 = (12)^2 + (\text{Base})^2$$

$$225 = 144 + (\text{Base})^2$$

$$225 - 144 = (\text{Base})^2$$

$$\sqrt{81} = \sqrt{(\text{Base})^2}$$

$$\text{Base, DE} = 9 \text{ cm}$$

Then

$$A = \frac{1}{2} \cdot (9) \cdot (12)$$

$$A = \frac{1}{2} (108)$$

$$\text{Area} = 54 \text{ cm}^2$$

15
15
75
158
225
144
81

Area of Square
rectangle DEGF :

$$\text{As } DE = 9 \text{ cm}$$

$$\text{Then } DE = DG = GF = EF = 9 \text{ cm}$$

$$\text{Area} = l^2$$

$$\text{Area} = (9)^2$$

$$\boxed{A = 81 \text{ cm}^2}$$

Total Area :

$$\text{Total Area} = \text{Area of square ABCD} + \text{Area of Triangle AD} \\ \text{Area of square DGEF}$$

$$\text{Total Area} = 144 + 54 + 81$$

$$\boxed{\text{Total Area} = 279 \text{ cm}^2}$$

$$\text{Perimeter} = AB + BC + CD + AD + AE + DG + FG + FE$$

$$= 12 + 12 + 12 + 12 + 15 + 9 + 9 + 9$$

$$= 48 + 15 + 27$$

$$\boxed{\text{Perimeter} = 90 \text{ cm}}$$

Q # 8

Part (d)

Given Expression:

15, 15, 16, 16, 17, 17, 18, 19.

Definition of Terms:

Mean: The average value of all numbers in a given expression is called mean.

Median: The middle ^{number} in a given expression/series is called median.

Mode: The most frequent number is called mode.

Range: Difference between highest and lowest number in a series is called range.

Calculations:

$$\begin{aligned}\text{Mean} &= \frac{15+15+16+16+17+17+18+19}{8} \\ &= \frac{193}{8}\end{aligned}$$

$$\boxed{\text{Mean} = 24.2}$$

$$\text{Median} = \frac{16+17}{2} = \frac{33}{2}$$

$$\boxed{\text{Median} = 16.2}$$

$$\text{Mode} = 15, 16, 17$$

$$\text{Range} = 19 - 15$$

$$\text{Range} = 4$$

— x — x — x — x

Part (b)

Given Data :

12 cards numbered 1, 2, 3, 4, 5, ..., 12

To Find :

Probability of 8 = ?

Probability of even number = ?

Probability of negative number = ?

a number less than 13 = ?

Solution :

Sample Space = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Let A be the event selecting '8', then $n(A) = 8$

$$P(A) = \frac{n(A)}{n(S)}$$

since, $\text{Probability} = \frac{\text{Number of desired outcome}}{\text{Total number of outcomes}}$

$$P(A) = \frac{1}{12}$$

Let A be the event selecting 'even numbers',
then $n(A) = 2, 4, 6, 8, 10, 12$

$$P(A) = \frac{n(A)}{n(S)}$$

$$P(A) = \frac{6}{12}$$

Let A be the event selecting 'negative numbers'
then $n(A) = 0$

$$P(A) = \frac{n(A)}{n(S)}$$

$$P(A) = \frac{0}{12}$$

$$P(A) = 0$$

Let A be the event selecting 'number less
than 13',

then $n(A) = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12$

$$P(A) = \frac{n(A)}{n(S)}$$

$$P(A) = \frac{12}{12}$$

$$P(A) = 1$$