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Mathematics Solved TMA

Q.1 A Rectangular sheet of Paper 44cm X 18cm is Rolled Along its length And a cylinder is formed. find the volume of the cylinder.

Ans We Have $2\pi r = 44$

$\therefore$ find volume of the cylinder

$= 2 \times \frac{22}{7} \times r = 44$

$\therefore r = 7cm$

Volume of cylinder $= \pi r^2 l$

$= \frac{22}{7} \times 7^2 \times 18$

$= 2772\ cm^3$

$\therefore$ Hence the volume of cylinder is $277cm^3$

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Q:2 (b) Determine the Ratio in which the give line $3x+y-9=0$ Divides the segment Joining the Points $(1,3)$ And $(2,7)$

Ans given :- $3x+y-9=0$ Divides the line segment Joining the Point $(1,3)$ And $(2,7)$

To find :- Ratio

Sallution :- By using section formula we have

$$x = \frac{2k+1}{k+1} \qquad y = \frac{7k+5}{k+5}$$

since $P(x,y)$ is a Point the line $3x+y-9=0$

$$\Rightarrow 3\left(\frac{2k+1}{k+1}\right) + \left(\frac{7k+3}{k+1}\right) - 9 = 0$$

$$\Rightarrow 6k+3+7k+3-9k-9 = 0$$

$$\Rightarrow 4k-3=0 \Rightarrow 4k=3 \Rightarrow k \Rightarrow \frac{3}{4}$$

$\therefore$ Hence the line $3x+y-9=0$ Divides the line Segment in the Ratio 3:4

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Q.3 (A) The length of Rectangle is 12M More than Twice the width The Area of the Rectangle is 320 Square meter write an Equation that can be use to find the length And width of the Rectangle Also find the Dimensions of the Rectangle

Ans

let width = xm

length = (2x+12)m

$(2x+12) \times x = 320$

$2(x+6) \times x = 160$

$x^2 + 6x - 160 = 0$

$x^2 - 10x + 16x - 160 = 0$

$x(x-10) + 16(x-10) = 0$

$\therefore x = 10$ or $x = -16$

we also knows x should be Positive value

$x = 10$

Therefore width = 10m

" " length = 2x+12

$= 2 \times 10 + 12$

$= 20 + 12$

$= 32m$

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Q.4 If the Bisector of an Triangle Bisects the opposite side Prove that Triangle is Isosceles.

Ans Given :- if the Bisector of an angle of Triangle Bisects the opposite side.

∴ To Prove :- Triangle is Isosceles.

Solution :-

In ΔABC AD is Bisector of $\angle A$ and AD Bisect side BC such that $BD = DC$

In ΔBAD And ΔDAC

$\Rightarrow \angle BAC = \angle DAC$ (given)

$\Rightarrow BD = DC$ (given)

$\Rightarrow AD = AD$ (Common)

So $\Delta BAD \cong \Delta DAC$ (SAS)

as $\Delta BAD \cong \Delta DAC$ so By cpct is corresponding Parts of Congurent Triangle is Equal

Therefore $AB = AC$

In ΔABC, as $AB = AC$

So ΔABC is an Isosceles.

∴ Hence that Proved This Triangle is Isosceles.

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Q.5 If 6 times the 6th Term of an A.P is Equal to 9 times its 9th term then show that its 15th Term is zero.

Ans Given :- 6 times the 6th term of an A.P is Equal to 9 times the 9th term

Find :- show that its 15th Term is zero.

Solution :-

$$6(a+5d) = 9(a+8d)$$

$$6a + 30d = 9a + 72d$$

$$-3 = 42d$$

$$a = -14d \quad \ldots\ldots\ldots - (1)$$

$$15^{th} \text{ Term} = (a + 14d)$$

$$\therefore 14d = -a$$

$$a - a = 0$$

$\therefore$ Hence that Proved 15th Term is zero.

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Q.6 Conduct a survey of atleast 50 Households from your locality, village, Regarding Population And family Income

(i) Present the Data Related to family members in Tabular from mentoning frequencies.

family size	No of families	Total Population
2	08	16
3	12	36
4	07	28
5	12	60
6	05	30
7	04	28
8	02	16
Total	50	214

(ii) Calculate the Average family size, How many families Are Above the Average family size?

Ans Average family size = $\frac{214}{50}$

$= 4.28$

$= 4$ (Approx)

The family Are Above the Average size that 5, 6, 7

$12 + 05 + 04 = 21$ Ans

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(iii) Draw the Bar graph of Top ten earning families