

NMM5 - SAT - Maths

91. Madhavi has paid SI on a certain amount for 4 years at 20% p.a is Rs. 5000, Find the principal.

Soln

$$I = \frac{P \times R \times T}{100}$$

$$5000 = \frac{P \times 4 \times 20}{100}$$

$$5000 = P \times \frac{4}{5}$$

$$5000 \times \frac{5}{4} = P$$

$$1250 \times 5 = P$$

$$P = \text{Rs. } 6250. (2)$$

92. There are 360 students in a school. Out of 360 students 240 are boys. Find the % of girls in that school.

Soln

$$\text{no. of girls} = 360 - 240 = 120.$$

$$\% \text{ of girls} = \frac{120}{360} \times 100$$

$$= \frac{1}{3} \times 100$$

$$= 33.3\%. (3)$$

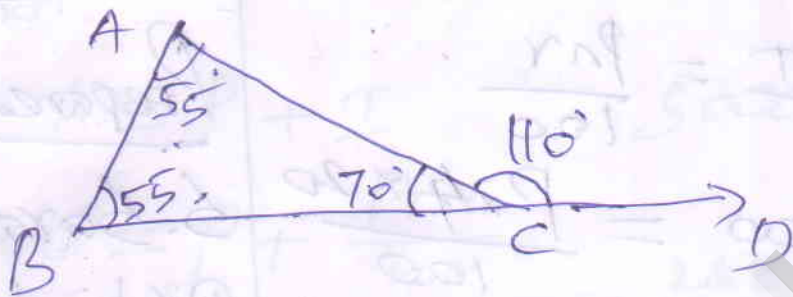
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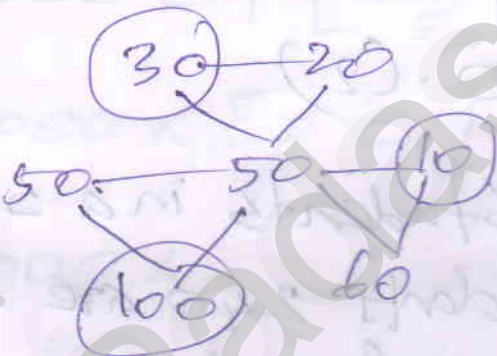
93. If the exterior angle of a triangle is  $110^\circ$  and its interior opposite angles are equal. find all the interior angles of the triangle.

Soln



(2)  $70^\circ, 55^\circ, 55^\circ$

94. Find the missing figures in the following Pascal's triangle



(1)  $30, 100, 10$ .

95. A.M of 10 observations are calculated is 60. In doing so, an observation was wrongly taken 51 instead of 11. What would be the correct mean.

Soln incorrect  $\bar{x} = 60$

$$\frac{\text{Incorrect } \Sigma x}{n} = 60$$

$$\text{Incorrect } \Sigma x = 60 \times 10 = 600$$

$$\text{Correct } \Sigma x = 600 - 51 + 11 = 560$$

$$\text{Correct } \bar{x} = \frac{560}{10} = 56 \text{ (1)}$$

96. If 60 workers can do a project work in 12 days, the no. of workers required to do it in 5 days are.

Soln

<u>workers</u>	<u>no. of days</u>
60	12
$x$	5

$$x = \frac{12}{5} \times 60 = 144 \text{ (1)}$$

97. An angle whose measure is greater than  $180^\circ$  and less than  $360^\circ$  is called as  
(4) reflex angle.

98 The factors of  $64x^2 + 144xy + 81y^2$  are

Soln

$$64x^2 + 144xy + 81y^2$$

$$= (8x)^2 + 2(8x)(9y) + (9y)^2$$

$$= (8x + 9y)^2$$

$$= (8x + 9y)(8x + 9y)$$

99. Circumference of a circle is always

Soln

$$\text{Circumference} = 2\pi r$$

$$= \pi(2r)$$

$$= \pi(\text{diameter})$$

$$= 3.14 \times \text{diameter}$$

(2) more than 3 times of its diameter.

Soln

100

The base of the parallelogram is 6 times its height. If the area is 1734 sq. cm, its base and height are respectively

Soln

$$\text{base} = 6 \times \text{height}$$

$$b = 6h$$

$$\text{Area} = 1734 \text{ sq. cm}$$

$$b \times h = 1734$$

$$6h \times h = 1734$$

$$h^2 = \frac{1734}{6} = 289$$

$$h^2 = 17^2$$

$$\boxed{h = 17 \text{ cm}}$$

$$b = 6 \times 17 = 102 \text{ cm}$$

$$\boxed{b = 102 \text{ cm}}$$

(2) 102 cm, 17 cm.

101 How many possible integers are there that give a product of -63?

Soln  $-63 = 1 \times (-63) = (-1) \times 63$

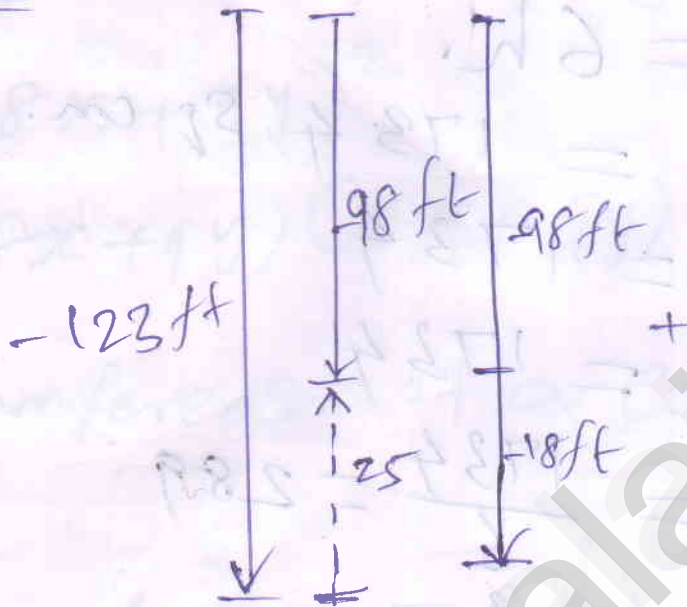
$$= 3 \times (-21) = (-3) \times 21$$

$$= 7 \times (-9) = (-7) \times 9$$

(4) 6 integers.

102 A submarine is at 123 feet below the sea level. Then it moves up to 25 feet and goes down below 18 feet. Find the depth of the submarine.

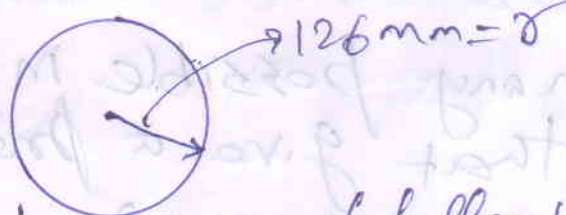
Soln



(3)  $-116$  ( $\therefore 116 \text{ ft}$  below the sea level)

103. The distance travelled by the tip of the seconds hand of a clock in 1 min, if its length is 126 mm

Soln



length of the arc = (full rotation in 1 min)

$$l = \frac{\theta}{360} \times 2\pi r$$

$$= \frac{360}{360} \times 2 \times \frac{22}{7} \times 126$$

$$= 44 \times 18 = 792 \text{ mm}$$

104. How many years are between 421 BC and 1537 AD?

Soln

$$421 \text{ BC} + 1537 \text{ (AD)} = 1958 \text{ (2)}$$

105. Find the median of the given data.

14, -3, 0, -4, -21, -8, 13, -6, 7, 8

Soln

Ascending order of the given data

-21, -8, -4, -3, -1, 0, 7, 8, 13, 14

$$\text{Median} = \frac{-1 + 0}{2} = -0.5$$

106. A 3 fold invitation card is given with measure. find its area.



$$\begin{array}{r} 180 \\ 234 + \\ \hline 414 \text{ cm}^2 \text{ (2)} \end{array}$$

$$\text{Area of III (rectangle)} = l \times b = 20 \times 9 = 180 \text{ cm}^2$$

Area of (I & II) (combined) of a trapezium

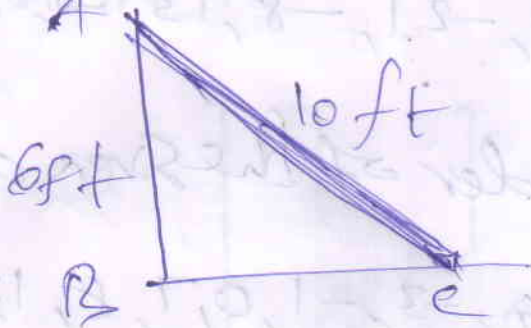
$$= \frac{1}{2} b (h_1 + h_2)$$

$$= \frac{1}{2} \times 18 \times (6 + 20)$$

$$= \frac{1}{2} \times 18 \times 26 = 9 \times 26 = 234 \text{ cm}^2$$

107) A 10 feet ladder leans against a wall at a height of 6 ft from the ground. How far is the base of the ladder from the wall?

Soln



$$AC^2 = AB^2 + BC^2$$

$$100 = 36 + BC^2$$

$$BC^2 = 64$$

$$BC = 8 \text{ ft (C)}$$

108. find the value of  $x$ :  $\frac{4x}{6} - 7 = \frac{3x}{5}$

Soln

$$\frac{4x}{6} - 7 = \frac{3x}{5}$$

$$x = 15 \times 7$$

$$\boxed{x = 105} \text{ (C)}$$

$$\frac{4x}{6} - \frac{3x}{5} = 7$$

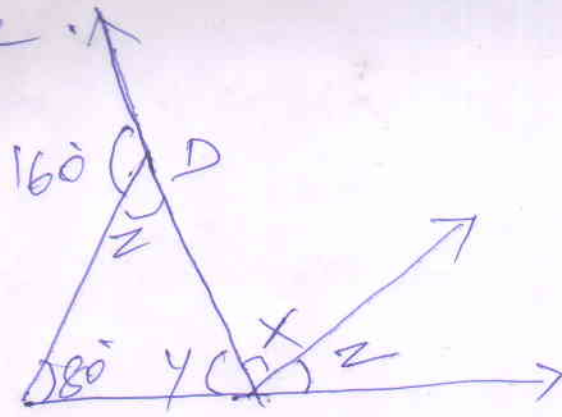
$$\frac{2x}{3} - \frac{3x}{5} = 7$$

$$\frac{10x - 9x}{15} = 7$$

$$15$$



109. Find the unknowns in the following figure.



Exterior angle = Sum of opposite interior angles

$$(i) 160^\circ = 80^\circ + y$$

$$\boxed{y = 80^\circ}$$

$$(ii) x + z = 80^\circ + z$$

$$\boxed{x = 80^\circ}$$

(iii) Angle in a st. line =  $180^\circ$

$$160^\circ + z = 180^\circ$$

$$\boxed{z = 20^\circ}$$

(4)  $80^\circ, 80^\circ, 20^\circ$

110. Find the correct ascending order of the following rational numbers.

$$-\frac{4}{3}, -\frac{7}{12}, \frac{8}{6}, -\frac{13}{15}$$

$$\frac{15}{8} \\ \frac{120}{120}$$

$$= -1.33, -0.58, \frac{8}{6}, -0.86$$

$$\text{Ans: } -\frac{4}{3}, -\frac{13}{15}, -\frac{7}{12}, \frac{8}{6} \text{ (1)}$$