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QSA-2016

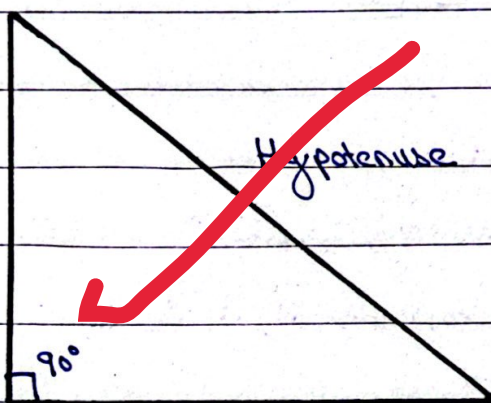
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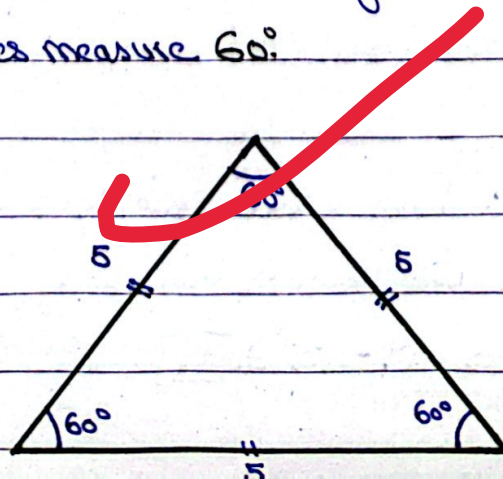
## Section-II

Question 10a). Rightangle Triangles

Definition: A right-angle triangle is a type of triangle that has one angle equal to  $90^\circ$ . The side opposite the right angle is called the hypotenuse.

a(ii). Equilateral Triangle

Definition: An equilateral triangle is a triangle in which all three sides and all three internal angles are equal.  
All angles measure  $60^\circ$ .



Add few properties as well

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Day: \_\_\_\_\_

Date: \_\_\_\_\_

b) 9 students in a group

Ages: 15, 15, 16, 16, 16, 17, 17, 18, 19

Mean:  $\frac{\text{Sum of all ages}}{\text{Total number of students}}$

$$= \frac{15 + 15 + 16 + 16 + 16 + 17 + 17 + 18 + 19}{9}$$

$$= \frac{149}{9} = \boxed{16}$$

Write the final answers in the form of statements

Median:

• Ages arranged in ascending order:

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

⇒ Since there are 9 values, the median is the "Middle value"

$$= \underline{\underline{16}} \text{ (5th value)}$$

Mode: It is the value which appears most frequently

⇒  $\boxed{16}$  appears 3 times

Range: The difference between the highest and lowest values

$$= 19 - 15 = \boxed{4}$$

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Day: \_\_\_\_\_

Date: \_\_\_\_\_

Q11 50km radius, Total stores: 80

aci) Number of stores served by the distribution

$$\text{Company} = 3 + 15 + 25 + 20 + 16$$
$$= \boxed{80 \text{ stores}}$$

ii) Mode Common Distance:

$$= \boxed{21 \text{ to } 30 \text{ kilometers}} \text{ (26 stores)}$$

iii) Number of stores that are 35km or more

from the godown:

Add Range: 31-40km + 41-50km

$$= 20 + 16$$

$$= \boxed{36 \text{ stores}}$$

iv) Percentage of stores 31km or more from godown:

2 Ranges: 31-40km + 41-50km

$$= 20 + 16 = 36 \text{ stores (Range)}$$

$$\rightarrow \frac{\text{Range}}{\text{Total number of stores}} \times 100$$

$$= \frac{36}{80} \times 100$$

$$= \boxed{45\%} \rightarrow \text{Stores that are 31km or more from the godown}$$

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Day: \_\_\_\_\_

Date: \_\_\_\_\_

b) 5 Students: Ahmad, Ali, Akbar, Nasis, and  
Shenboz.

Assumption: Assigning "10kg" weight  
to Ali

= Ali: 10kg

Ahmad:  $3 \times 10\text{kg}$ : 30kg

Akbar:  $\frac{10\text{kg}}{5} \times 2$ : 4kg

Nasis:  $2 \times 2$ : 4kg

Shenboz:  $4 \times 2$ : 8kg

Explain the decide the  
logic in detail and then  
apply it

i) Heaviest = Ahmad

ii) Lightest = Akbar

iii) Shenboz lighter than: Ahmad and Ali

iv) Shenboz heavier than: Akbar and Nasis

v) ~~Ascending~~ <sup>Descending</sup> Order: Ahmad, Ali, Shenboz, Nasis,  
Akbar

Q12 Group Distribution: 1000

Group A: 300

Group B: 325

Group C: 250

Group D: 125

Group AB probability =

$$\frac{\text{Group AB}}{\text{Total Group distribution}} = \frac{125}{1000}$$

$$= \frac{1}{8} \text{ or } 12.5\%$$

$$= P(AB) = 0.125$$

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Day: \_\_\_\_\_

Date: \_\_\_\_\_

Q12(C) 5 Friends: Akbar, Ali, Nasir, Shehboz, and Ahmed

5 Cities: V, W, X, Y, Z

5 Mode of Transport: Bus, Train, ~~Air~~ <sup>→ Aeroplane</sup>, Car, Boat

Provided Information:

- Akbar : Y by Car
- Ali : X by Air
- Nasir : ? by Boat
- Shehboz : ? by Train
- Ahmed : (?)

Deductions for Ahmed

- Ali → X, X excluded for Ahmed
- Nasir → Boat + X → X (boat doesn't go so "X" excluded for Nasir)
- Shehboz → Train → X or W (not possible)
- Akbar → Y → Car

i) As per deductions: City Z by Boat  
Bus = Ahmed

ii) ~~X used Air to travel~~  
Person travelling to X used Aeroplane

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Day: \_\_\_\_\_

Date: \_\_\_\_\_

Q13 a)  $\rightarrow$  Google

b)  $Y = mx + c$

$M =$  Gradient / slope of the line

$C =$   $Y$ -intercept, value of  $Y$  when  $x=0$

$Y$ -intercept assumption: The point where the line crosses the  $Y$ -axis

E.g:  $C = 5$  so  $Y$ -axis  $(0, 5)$

Gradient assumption: E.g  $m = 4$ , for

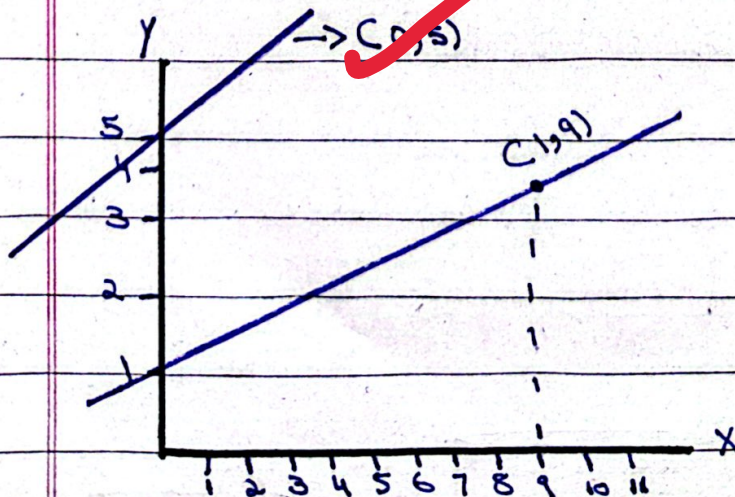
1 unit increase in  $x$ ,  $Y$  increases by 4 units.

$\Rightarrow C = 5$  so Point is  $(0, 5) \rightarrow$  Point 1

$M = 4$  so 1 unit  $\uparrow$  in  $x$ -axis will

$\uparrow$  4 units along  $Y$ -axis so Point is  $(1, 9) \rightarrow$  Point 2

Line  $\Rightarrow Y = 4x + 5$



⑦

Day: \_\_\_\_\_

Date: \_\_\_\_\_

$\Rightarrow$  Point  $\Rightarrow (0, 5) \rightarrow$  where line crosses  
the  $y$ -axis

$\Rightarrow$  Point  $\Rightarrow (1, 9) \rightarrow$  Point using  $m=4$ ,  
1 unit increase in  $x = 4$  unit increase in  $y$ .