General Science and Ability Paper

(17)

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Section I

Qno 1.

a. **Given Data**

Raised price = Rs. 80

Percent increase = 20%

Required

original price of shirt = x = ?

Solution

We know that:

$$\frac{80 - x}{x} \times 100 = 20\%$$

$$\Rightarrow \quad \frac{80 - x}{x} = \frac{20}{100}$$

$$80 - x = \frac{\cancel{2}x}{\cancel{10}\,5}$$

$$(80 - x)\,5 = x$$

1
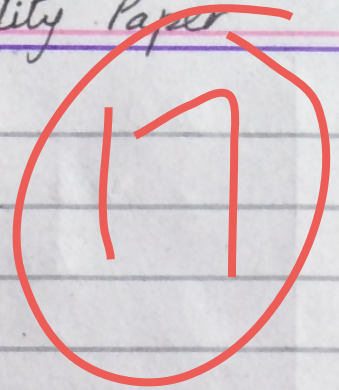
$$400 - 5x = x$$
$$400 = x + 5x$$
$$400 = 6x$$
$$\Rightarrow \quad x = \frac{400}{6} = \frac{360}{6} + \frac{40}{6}$$
$$= 60 + \frac{20}{3}$$
$$= 60 + \frac{18}{3} + \frac{2}{3}$$
$$= 60 + 6 + \frac{1}{3} + \frac{1}{3}$$
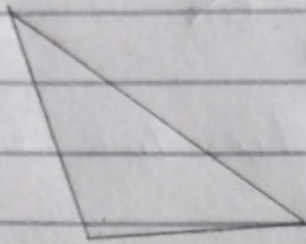$$= 66 + 0.333 + 0.333$$
$$= 66.6667$$

Result

Hence, original price $= Rs. \ 66.6667$
$$\approx Rs. \ 67.$$
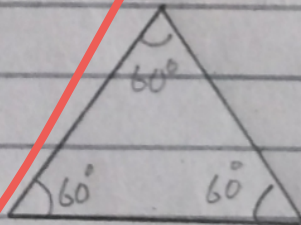
i.
c. <u>Scalene Triangle</u>

A triangle which has all three sides of different lengths is called a scalene triangle.

Its all angles are also different from each other.

ii. <u>Equilateral Triangle</u>

A triangle whose all three sides and all three angles are equal is called an equilateral triangle.

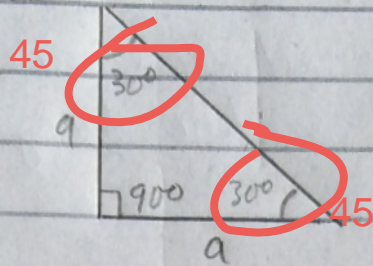$$\frac{180°}{3} = 60°$$

Its all angles (internal) are equal to 60°.

iii. <u>A triangle which is Isosceles and Right at the same time</u>

A triangle whose two sides are equal and and the angle between them is 90° is an isosceles and right at the same time.

45 30°
a
90° 30° 45
a

$$\frac{180° - 90°}{2} = 45°$$

The angles of the other two sides are 45° each.

d. **Given Data**
   total slices of pizza = 8
   slices with raisin = 3

Required
Probability that shiza will pick a slice with raisin

Solution
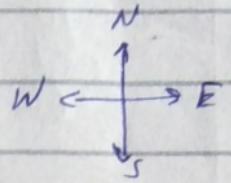Probability that shiza will pick a slice with raisin

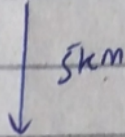$$= \frac{\text{slices with raisin}}{\text{total no. of slices}}$$

$$= \frac{3}{8}$$

Result
Hence, the probability that shizza picks a slice with raisin is 3/8.

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<u>Ans. 8</u>

N

W ←─┼─→ E

S

a. Man walks 5 km towards south

↓ 5km

Then he turns right (his right) and walks 3km

↕ | 5km
   ←──────
    3 km
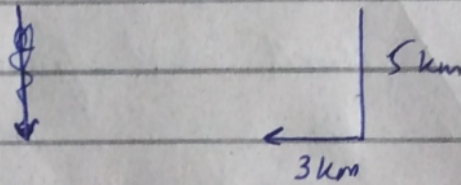
Then turns to his left and walks 4km

| 5km   ↕
3km
4km
   ↓

back

Then he goes ↑ 10 km straight

10
km

5km

3km

4km
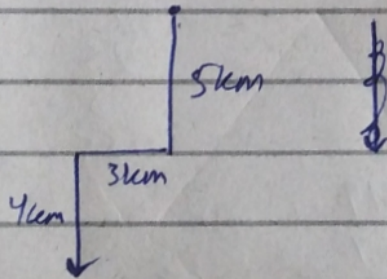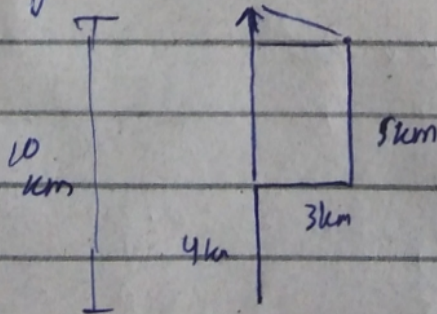
Distance from starting point is found by the triangle formed:

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$$\begin{array}{c} 10 \\ -4 \\ = 6 \end{array}$$
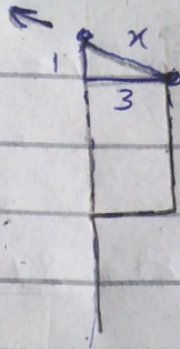
So, $x^2 = 1^2 + 3^2 = 9$

$x = \sqrt{10}$ km

Conclusion

So he is $\sqrt{10}$ km away from the starting in the North-West Direction.

b. To find

Airthmatic mean of cubes of 1st five prime numbers

Solution

cube of 1st prime number = 2^3 = 8

cube of 2nd prime number = 3^3 = $3 \times 3 \times 3$

= 9×3

= 27

cube of 3rd prime number = 5^3 = $5 \times 5 \times 5$

= 25×5

= 125

cube of 4th prime number = 7^3 = $7 \times 7 \times 7$

= 49×7 = 343

cube of 5th prime number $= (11)^3 = 11 \times 11 \times 11$

$$= 121 \times 11$$

$$= 1331$$

Arithmetic mean $= \dfrac{8 + 27 + 125 + 343 + 1331}{5}$

$$= \dfrac{1834}{5}$$

$$= \dfrac{1830}{5} + \dfrac{4}{5}$$

$$= \dfrac{1000}{5} + \dfrac{800}{5} + \dfrac{30}{5} + \dfrac{4}{5}$$

$$= 200 + 160 + 6 + 0.8$$

$$= 366.8$$

c. **Given Data**

Group of 50 men can ~~Construct~~ = 40 days construct 20 kilometer road in

Required

How long will it take 70 men to complete same length (20 km) of road

Solution

group of 50 men = 40 days
(road of 20km)

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So, 1 man $= \dfrac{40}{50}$ days
(construction of 20 km road)

and 70 men $= \dfrac{40 \times 70}{50}$ days
(construction of 20 km road)

$$= \dfrac{40 \times 7}{5} \text{ days}$$

$$= \dfrac{280}{5} \text{ days}$$

$$= \dfrac{28 \times 10}{5} \text{ days}$$

$$= 28 \times 2 \text{ days}$$

$$= 56 \text{ days}$$

Result

So, it will take 56 days for 70 men to complete same length (20 km) of road.

d. Given Data

Property left $=$ Rs. 1750 000
Debt $=$ Rs. 150 000

Required

Money left to be distributed between a son and a daughter of son recieves double that of daughter.

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Solution

Money left after paying debt
$$= Rs. \ 1750 \ 000 - Rs. \ 150 \ 000$$
$$= Rs. \ 1600 \ 000$$

~~Now, share of son = x~~

Now, share of daughter = x

share of son = $2x$

So,

$$2x + x = Rs. \ 1600 \ 000$$
$$3x = 1600 \ 000$$
$$x = \frac{1600 \ 000}{3}$$
$$x = \frac{1500 \ 000}{3} + \frac{100 \ 000}{3}$$
$$x = 500 \ 000 + \frac{99 \ 999}{3} + \frac{1}{3}$$
$$x = 500 \ 000 + 33 \ 333 + 0.3333$$
$$x = 533 \ 333 . 333$$

1750 000
150 000
1600 000

So, the daughter recieves = x = Rs. 533.333.333

and the son recieves = $2x$ = 2 × 533.333.333

$\qquad\qquad\qquad\qquad$ = Rs. 1066 666.666