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Date: 21st Sep; 2023

Section - II

Qno. 7

a. Given Data

Raised price = Rs. 80
Percent increase = 20%

Required

original price of shirt = x = ?

Solution

We know that:

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

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

$$80 - x = \frac{1}{5}x$$

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

$$400 - 5x = x$$

$$400 = x + 5x$$

$$400 = 6x$$

$$\Rightarrow x = \frac{400}{6} = \frac{360}{6} + \frac{40}{6} = 60 + \frac{20}{3}$$

$$= 60 + \frac{18}{3} + \frac{2}{3}$$

$$= 60 + 6 + \frac{1}{3} + \frac{1}{3}$$

$$= 66 + 0.333 + 0.333$$

$$= 66.6667$$

Result

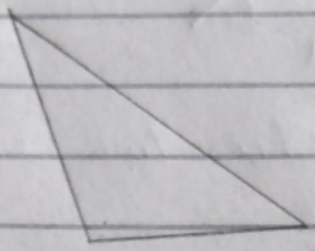
Hence, original price = Rs. 66.6667

$\approx$ Rs. 67

i.

c. Scalene Triangle

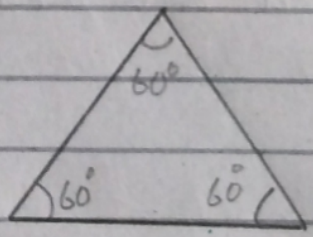
A triangle which has all three sides of different lengths is called a scalene triangle.



Its all angles are also different from each other.

ii. Equilateral Triangle

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

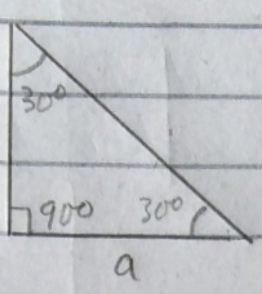


$$\frac{180^\circ}{3} = 60^\circ$$

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

iii. A triangle which is Isosceles and Right at the same time

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



$$\frac{180^\circ - 90^\circ}{2} = 45^\circ$$

The angles of the other two sides are ~~30~~ 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

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

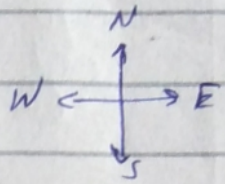
$$= \frac{3}{8}$$

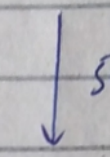
Result

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

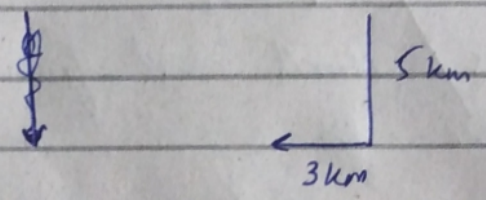
Qno. 8

a. Man walks 5 km towards south

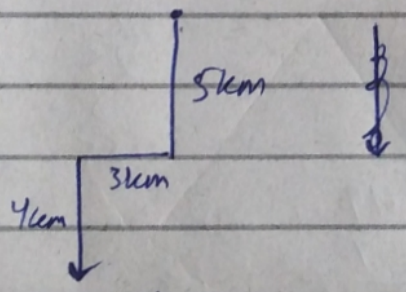




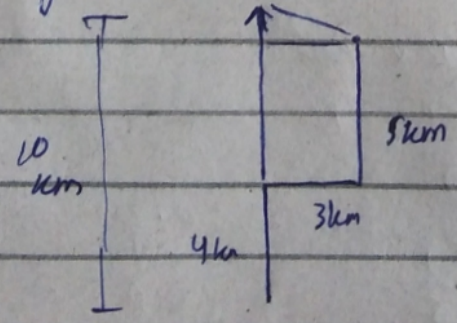
Then he turns right (his right) and walks 3km



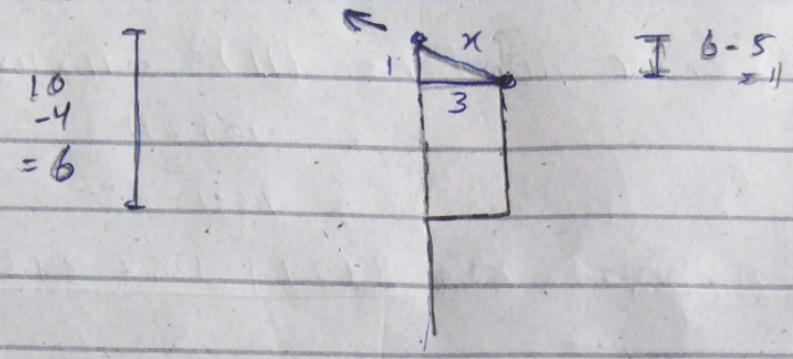
Then turns to his left and walks 4km



Then he goes back 10 km straight



Distance from starting point is found by the triangle formed:



So, $x^2 = 1^2 + 3^2 = 1+9$

$x = \sqrt{10}$ km

Conclusion

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

b. To find

Arithmatic mean of cubes of 1st five prime numbers

Solution

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

cube of 2nd prime number = $3^3 = 3\times3\times3$

$= 9\times3$

$= 27$

cube of 3rd prime number = $5^3 = 5\times5\times5$

$= 25\times5$

$= 125$

cube of 4th prime number = $7^3 = 7\times7\times7$

$= 49\times7 = 343$

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

$= 121 \times 11$

$= 1331$

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

$= \frac{1834}{5}$

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

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

$= 200 + 160 + 6 + 0.8$

$= 366.8$

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)

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

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

$= \frac{40 \times 7}{5}$ days

$= \frac{280}{5}$ days

$= 28 \times \frac{10}{5}$ days

$= 28 \times 2$ days

$= 56$ 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 receives double that of daughter.

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

$$\begin{array}{r} 1750000 \\ 150000 \\ \hline 1600000 \end{array}$$

So,

$$2x + x = \text{Rs. } 1600\,000$$

$$3x = 1600\,000$$

$$x = \frac{1600\,000}{3}$$

$$x = \frac{1500\,000}{3} + \frac{100\,000}{3}$$

$$x = 500\,000 + \frac{99999}{3} + \frac{1}{3}$$

$$x = 500\,000 + 33\,333 + 0.3333$$

$$x = 533\,333.333$$

So, the daughter receives = x = Rs. 533.333.333

and the son receives = $2x$ = $2 \times 533.333.333$

= Rs. 1066 666.666