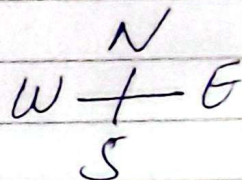
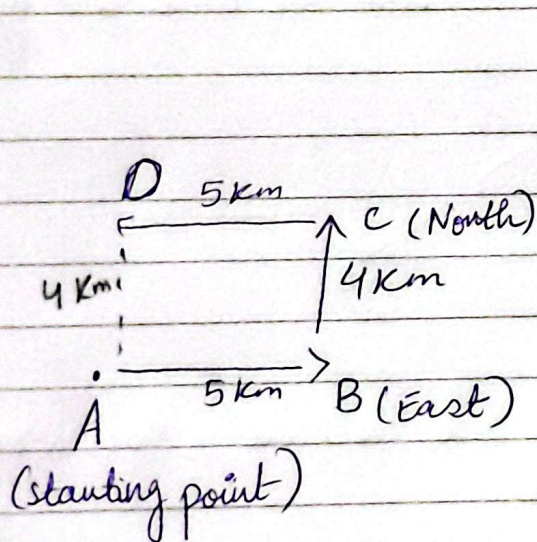


11/7/25 Friday

Math Homework # 3, Part B

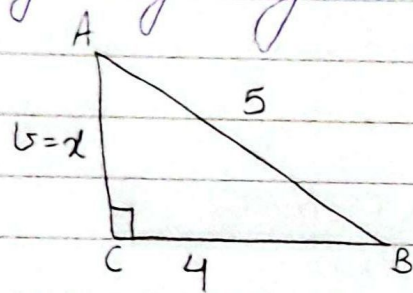
Q. A man starting from his home walks 5 km towards East and then turns left and goes 4 km. At last, he turns to his left and walks 5 km. Now find the distance between man and his house and also find in which direction.



- This means that the man is 4 km away and north of his original position (A). We will assume the distance from D to A is 4 km because the distance travelled makes a rectangle, or that the man cancels out his horizontal displacement by travelling the same distance from A to B and then again from C to D.

Q. A man travels over the path of a right angle triangle having base and hypotenuse 4 and 5 km, respectively. After a complete round he continues in the same direction for 6 km and then turns 90 degrees and continues for another 8 km. How long has he travelled and how far is he from his starting point?

First part of the journey with the base and hypotenuse -



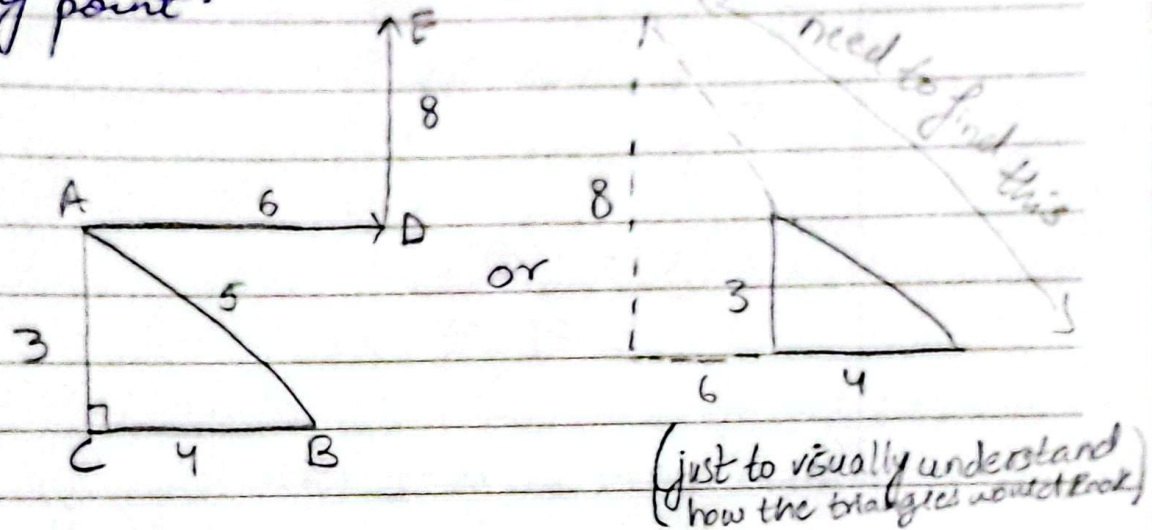
To find the remaining side, we'll use pythagorean theorem:

$$\begin{aligned} c^2 &= a^2 + b^2 \\ 5^2 &= 4^2 + b^2 \\ 25 - 16 &= b^2 \\ 9 &= b^2 \\ 3 &= b_{\text{km}} \end{aligned}$$

The value of x or b is 3 km. Now we have all sides of the right angled triangle

A complete round for this path will take:
 = 3 + 5 + 4
 = 12 km

- For the second part of the journey, he continues from his starting point.



- This represents the second part of his journey -

$$\begin{aligned}
 \text{Total distance travelled} &= \text{Triangle} + \text{New path} \\
 &= 12 \text{ km} + (6+8) \\
 &= 26
 \end{aligned}$$

- To find his distance from the starting point (A) we will use ADE coordinates as a right angle triangle

$$\begin{aligned}
 c^2 &= a^2 + b^2 \\
 c^2 &= 6^2 + 8^2 \\
 c^2 &= 36 + 64 \\
 c &= 10
 \end{aligned}$$

$c = 10 \text{ km}$, which means A to E, the distance is 10 km

- So $4 \text{ km} + 6 \text{ m} = 10 \text{ km East}$
- And $3 \text{ km} + 8 \text{ m} = 11 \text{ km North}$

- Now we'll use Pythagorean theorem again.

$$c^2 = a^2 + b^2$$

$$c^2 = 10^2 + 11^2$$

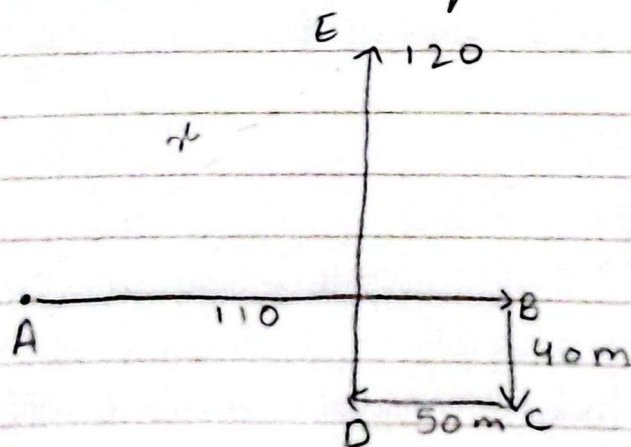
$$c^2 = 100 + 121$$

$$c^2 = 221$$

$$c = 14.87 \text{ Km}$$

- The man is 14.87 Km away from his home.

Q. For his morning walk, Aslam went 110m towards east from his house and then turned right to keep walking for 40m before turning right again. After continuing to walk for 50meters, he turned right again and kept walking for another 120m, before he sat down on a bench at the park. How far was the bench located from his house.



- To find how far north Aslam has travelled in the second leg of his journey, we'll use the Pythagorean Theorem.

- He went 120m north, and we know that he previously had travelled 40m south from his starting location (A/his house)

$$S_0 = 120 - 40$$

= 80m north / above his starting place

- To determine how far east he travelled, we'll subtract his earlier leg of the newer one.

$$110 - 50 = 60 \text{ km east}$$

- Now we can use both these values and apply the displacement formula/pythagoras theorem to find the distance between A and E (our x).

$$c^2 = a^2 + b^2$$

$$c^2 = 60^2 + 80^2$$

$$c^2 = 3600 + 6400$$

$$c = \sqrt{10000}$$

$$c = 100 \text{ meters}$$

- Adam is a 100meters away from his house/the bench is located 100 meters away.

Q. Eleven students A, B, C, D, E, F, G, H, I, J, K are sitting in a row facing towards ~~the~~ a teacher. D, who is immediate to F, is second right to the C. A, is second right to E, who is at the one end. J is the neighbor of A and B third to the left of G. H is on the left side of D and third to the right of I. Who is in the middle, also draw the table.

• First Clue:

C, —, D, F

• Second Clue:

E, —, A and this is at one end (we haven't been told which)

• Third Clue:

E, —, A, J, B, —, G

• Fourth Clue:

~~E, H, D, F~~, I, —, C, H, D, F

Let's try to piece it together keeping second clue in mind about end.
Teacher

↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
[E] [K] [A] [J] [B] [I] [G] [C] [H] [D] [F]

Whatever alphabet is left, we'll place it in the empty spot.

According to this, 'I' is in the middle.

Q. Five girls A, B, C, D, E and four boys W, X, Y, Z have to go on a trip ~~on~~ in three cars. The following restrictions for seating in the car to be observed.

1. Only 3 persons can sit in one car.
2. At least one boy and one girl must be in each car.
3. A and D should remain together.
4. Z cannot sit with B or C in the same car.

Distribute boys and girls in three cars.

Total number of people = 9

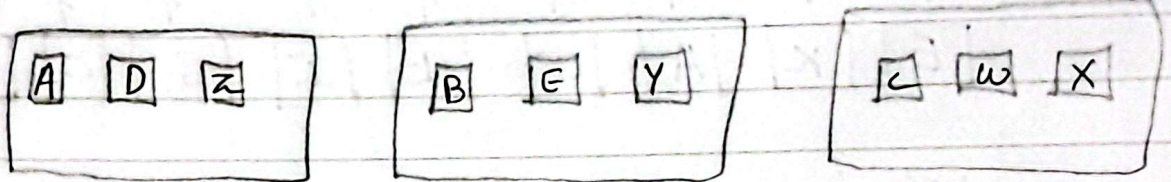
Total girls = 5

Total boys = 4

Total Cars = 3

Total passengers per car = 3

- There should be at least 1 boy and 1 girl in each car. A and D should be together. Z can't sit with B or C.



Car 1

Car 2

Car 3

- Car 1 has 2 girls (A+D are together) and Z is a boy.
 - Car 2 has 2 girls and 1 boy.
 - Car 3 has 2 boys and 1 girl.
 - Z is not in the same car as B or C.
- Q. If Asif is standing in a queue in such a way that he is sixth in the queue from either side, then how many people are standing in the queue?

1st person, 2nd, 3rd, 4th, 5th, Asif, 6th, 7th, 8th, 9th, 10th

5 before + Asif + 5 after = 11 people in the queue.

- Q. If five cars are parked bumper to bumper, how many bumpers are touching each other?



4 bumpers are touching each other