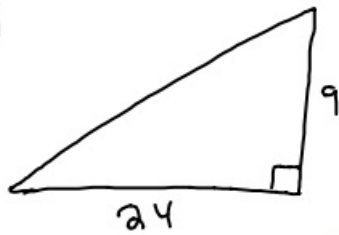


8-29-19 6th Geo

①



$$leg^2 + leg^2 = hyp^2$$

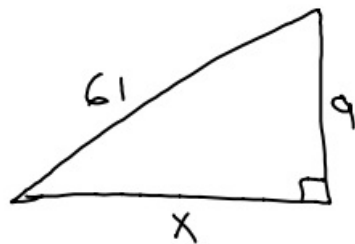
$$9^2 + 24^2 = hyp^2$$

$$81 + 576 = hyp^2$$

$$\sqrt{657} = \sqrt{hyp^2}$$

$$25.6 \approx hyp$$

②



$$leg^2 + leg^2 = hyp^2$$

$$leg^2 + 9^2 = 61^2$$

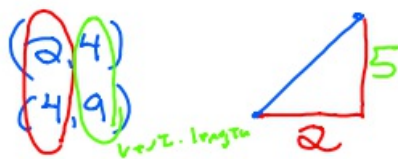
$$leg^2 + 81 = 3721$$

$$\begin{array}{r} leg^2 + 81 = 3721 \\ -81 \quad -81 \\ \hline \end{array}$$

$$\sqrt{leg^2} = \sqrt{3640}$$

$$leg \approx 60.3$$

③ IF $A = (2, 4)$ and $B = (4, 9)$,
what is AB ?



Horizontal
length

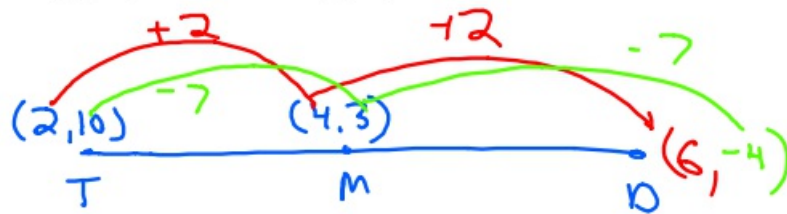
$$2^2 + 5^2 = c^2$$

$$4 + 25 = c^2$$

$$\sqrt{29} = \sqrt{c^2}$$

$$c \approx 5.4$$

- ④ On \overline{TD} , M is the midpoint.
 If $T = (2, 10)$ and $M = (4, 3)$,
 what is D ?



- ⑤ If A is between B and T
 with $BA = 6n + 10$ and
 $AT = 2n + 4$. If $BT = 40$, what
 is BA ?



$$BA + AT = BT$$

$$6n + 10 + 2n + 4 = 40$$

$$8n + 14 = 40$$

$$\begin{array}{r} 8n + 14 = 40 \\ -14 \quad -14 \\ \hline 8n = 26 \\ \frac{8n}{8} = \frac{26}{8} \end{array}$$

$$n = 3\frac{1}{4} (3.25)$$

$$BA = 6 \cdot n + 10$$

$$= 6 \cdot 3\frac{1}{4} + 10$$

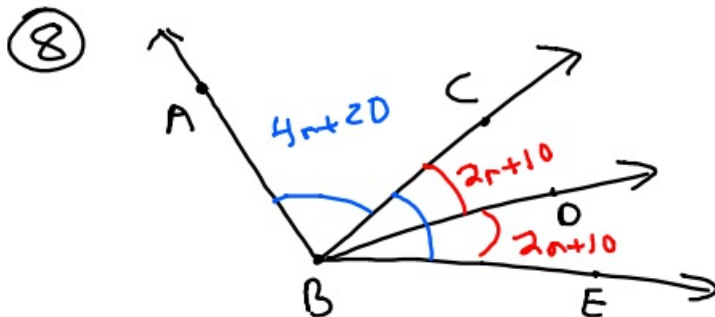
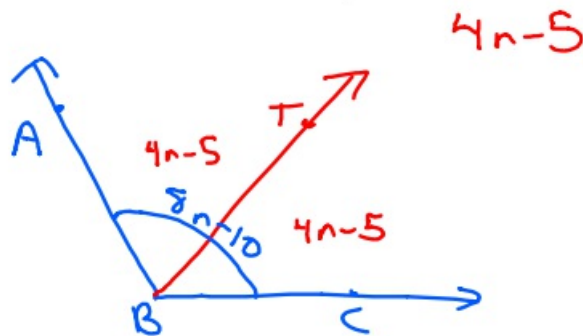
$$= 19.5 + 10$$

$$= 29.5$$

- ⑥ $\angle 1$ and $\angle 2$ are vertical angles. If $\angle 1 = 4n + 1$ and $\angle 2 = 6n - 9$, what is $\angle 1$?

$$\begin{array}{r}
 \angle 1 = \angle 2 \\
 \downarrow \\
 4n + 1 = 6n - 9 \\
 \begin{array}{r}
 -4n \qquad -4n \\
 \hline
 1 = 2n - 9 \\
 +9 \qquad +9 \\
 \hline
 10 = 2n \\
 \frac{10}{2} = \frac{2n}{2} \\
 5 = n
 \end{array}
 \end{array}
 \qquad
 \begin{array}{l}
 \angle 1 = 4 \cdot n + 1 \\
 = 4 \cdot 5 + 1 \\
 = 21
 \end{array}$$

- ⑦ \overrightarrow{BT} bisects $\angle ABC$. If $\angle ABC = 8n - 10$, what is $\angle ABT$?



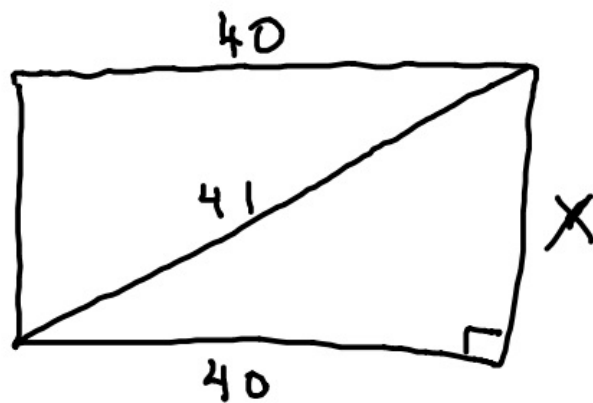
\overrightarrow{BC} bisects $\angle ABE$

\overrightarrow{BD} bisects $\angle CBE$

$$8n + 40$$

If $\angle DBE = 2n + 10$, what is $\angle ABE$?

9



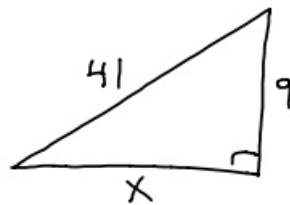
$$\begin{aligned}40^2 + x^2 &= 41^2 \\1600 + x^2 &= 1681 \\- 1600 &\quad - 1600 \\ \hline x^2 &= 81 \\ x &= 9\end{aligned}$$

10 Determine if a triangle with sides of 12, 37, 35 is a right triangle.

$$\begin{aligned}12^2 + 35^2 &= 37^2 \\144 + 1225 &= 1369 \checkmark\end{aligned}$$

8-29-19 7th Geo

①



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

$$\text{leg}^2 + 9^2 = 41^2$$

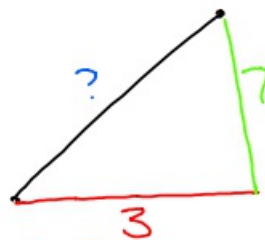
$$\text{leg}^2 + 81 = 1681$$

$$\begin{array}{r} -81 \quad -81 \\ \hline \text{leg}^2 = 1600 \end{array}$$

$$\text{leg} = 40$$

② If $A = (1, 3)$ and $B = (4, 10)$,
What is AB ?

$(1, 3)$
 $(4, 10)$
3



$$3^2 + 7^2 = \text{hyp}^2$$

$$9 + 49 = \text{hyp}^2$$

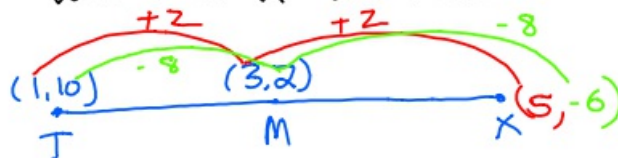
$$\sqrt{58} = \text{hyp}^2$$

$$\text{hyp} \approx 7.6$$

③ On \overline{TX} , M is the midpoint.

If $T = (1, 10)$ and $M = (3, 2)$,

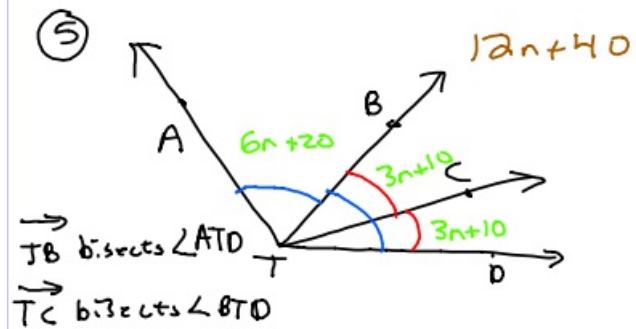
Where is X located?



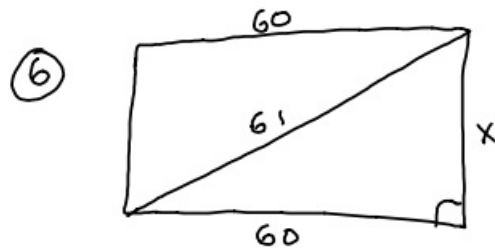
- ④ $\angle 1$ and $\angle 2$ are a linear pair. If $\angle 1 = 9n + 10$ and $\angle 2 = n + 70$, what is $\angle 1$?



$$\begin{aligned} \angle 1 + \angle 2 &= 180^\circ \\ \downarrow \quad \downarrow \\ 9n + 10 + n + 70 &= 180 \\ 10n + 80 &= 180 \\ -80 \quad -80 & \\ \hline 10n &= 100 \\ n &= 10 \end{aligned} \quad \begin{aligned} \angle 1 &= 9n + 10 \\ &= 9 \cdot 10 + 10 \\ &= 100 \end{aligned}$$



If $\angle CTD = 3n + 10$, what is $\angle ATD$?



$$\begin{aligned} 60^2 + x^2 &= 61^2 \\ 3600 + x^2 &= 3721 \\ -3600 \quad -3600 & \\ \hline x^2 &= 121 \\ x &= 11 \end{aligned}$$

- ⑦ $\angle 1$ and $\angle 2$ are complementary angles. If $\angle 1 = 2n$ and $\angle 2 = 3n - 10$, what is $\angle 1$?

$$\angle 1 + \angle 2 = 90^\circ$$

$$2n + 3n - 10 = 90$$

$$\begin{array}{r} 5n - 10 = 90 \\ +10 \quad +10 \\ \hline 5n = 100 \end{array}$$

$$n = 20$$

$$\angle 1 = 2n \\ 2 \cdot 20 = 40$$

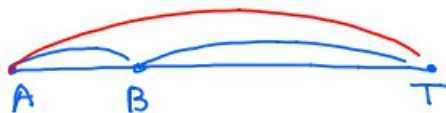
- ⑧ A triangle has side lengths of 9, 15, and 12. Is it a right triangle? Why or why not?

$$leg^2 + leg^2 = hyp^2 \quad \leftarrow \text{must be largest \#}$$

$$9^2 + 12^2 = 15^2$$

$$81 + 144 = 225 \quad \checkmark$$

- ⑨ B is between A and T.
If $AT = 40$, $AB = 4n - 5$,
and $BT = n + 10$, what is n ?



$$AB + BT = AT$$

$$4n - 5 + n + 10 = 40$$

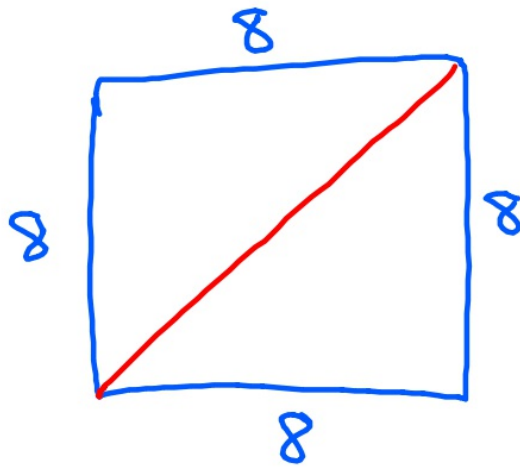
$$5n + 5 = 40$$

$$\begin{array}{r} 5n + 5 = 40 \\ -5 \quad -5 \\ \hline 5n = 35 \end{array}$$

$$5n = 35$$

$$n = 7$$

10) What is the diagonal length of a square with a side length of 8?



$$8^2 + 8^2 = \text{hyp}^2$$

$$64 + 64 = \text{hyp}^2$$

$$\sqrt{128} = \sqrt{\text{hyp}^2}$$

$$\text{hyp} \approx 11.3$$