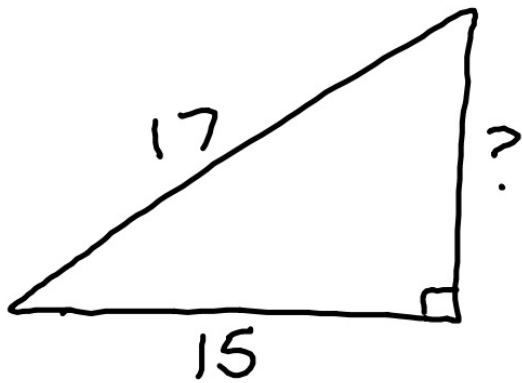


8-22-19 6<sup>th</sup> Geo



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

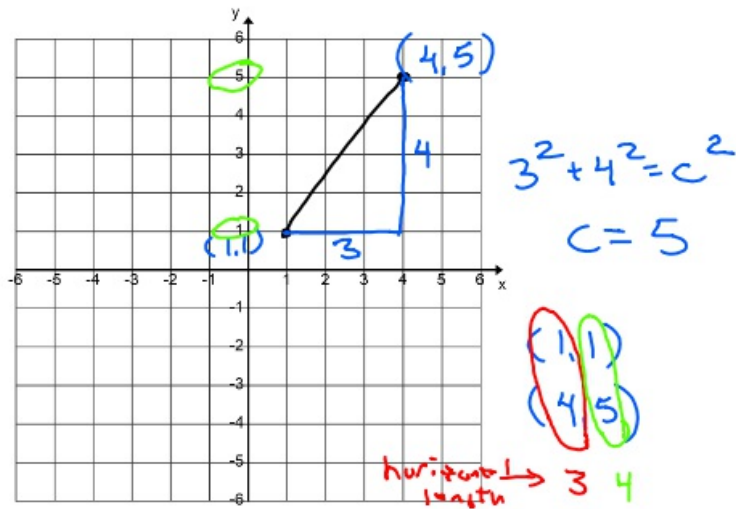
$$15^2 + \text{leg}^2 = 17^2$$

$$225 + \text{leg}^2 = 289$$

$$\begin{array}{r} -225 \qquad \qquad -225 \\ \hline \end{array}$$

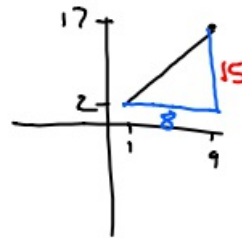
$$\sqrt{\text{leg}^2} = \sqrt{64}$$

$$\text{leg} = 8$$



② What is the distance from  $(1, 2)$  to  $(9, 17)$ ?

$(1, 2)$   
 $(9, 17)$   
 8 15



$$8^2 + 15^2 = \text{hyp}^2$$

$$64 + 225 = \text{hyp}^2$$

$$\sqrt{289} = \sqrt{\text{hyp}^2}$$

$$17 = \text{hyp}$$

$$D = \sqrt{\Delta x^2 + \Delta y^2}$$

③ Give the distance from  $(-2, 6)$  to  $(-4, 10)$ .

$(-2, 6)$   
 $(-4, 10)$   
 2 4

$$D = \sqrt{\Delta x^2 + \Delta y^2}$$

$$\sqrt{2^2 + 4^2}$$

$$2^2 + 4^2 = \text{hyp}^2$$

$$4 + 16 = \text{hyp}^2$$

$$\sqrt{20} = \sqrt{\text{hyp}^2}$$

$$\text{hyp} \approx 4.5$$

$$\sqrt{4 + 16}$$

$$\sqrt{20}$$

- ④ How can I tell if the triangle with sides of 11, 10, and 9 is a right  $\Delta$ ?

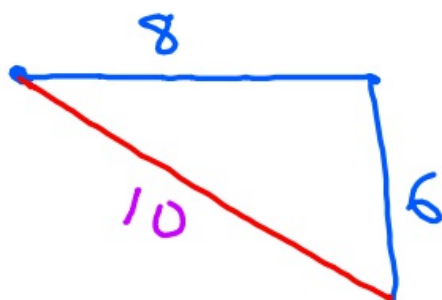
If it is  $9^2 + 10^2 = 11^2$

$$81 + 100 = 121?$$

X

Not a right  $\Delta$ .

- ⑤ I walk 8 miles due East and then 6 miles due South. How far from my starting point am I?

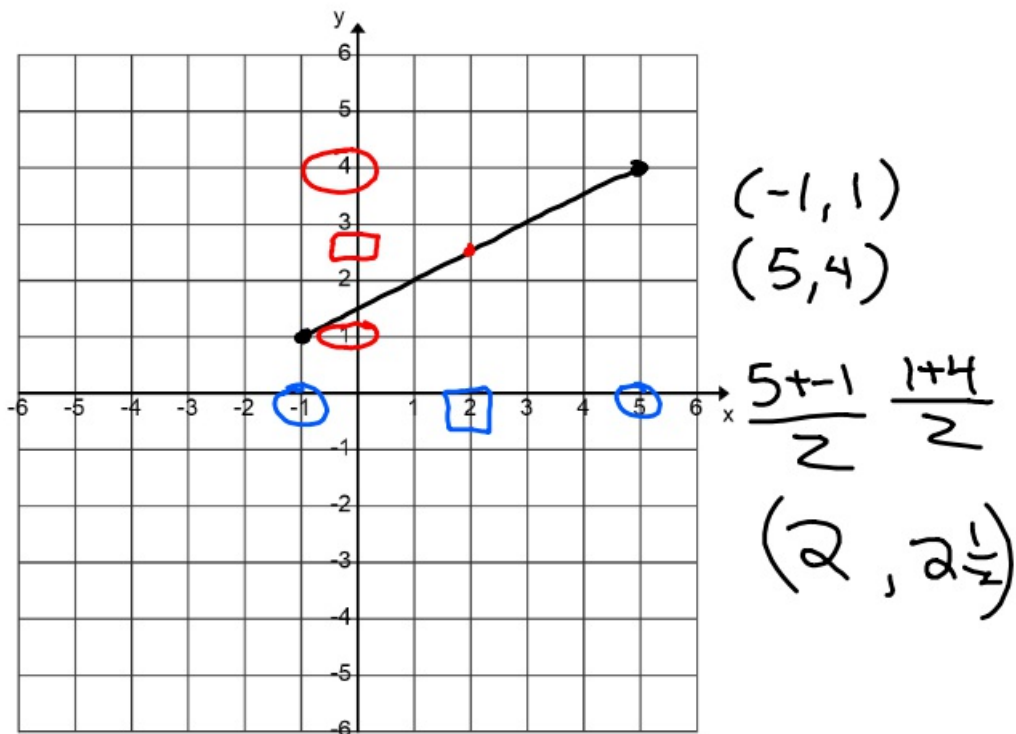


$$\begin{aligned} 8^2 + 6^2 &= \text{hyp}^2 \\ 100 &= \text{hyp}^2 \\ 10 &= \text{hyp.} \end{aligned}$$

## Next concept

How do we find the middle of your age and my age?

$$\frac{49 + 13}{2} = \frac{62}{2} = 31$$

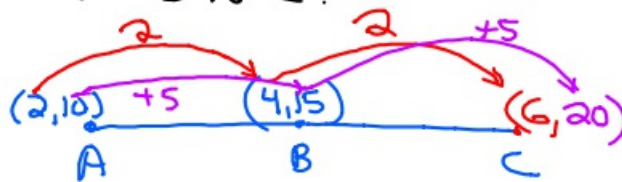


$$\text{Midpoint} = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

- ① Find the midpoint of  $\overline{AB}$  where  $A=(9,8)$  and  $B=(3,20)$ .

$$\begin{aligned} \text{midpoint} &= \left( \frac{9+3}{2}, \frac{8+20}{2} \right) \\ &= (6, 14) \end{aligned}$$

- ② B is the midpoint of  $\overline{AC}$ .  
 $A=(2,10)$  and  $B=(4,15)$ .  
Where is C?

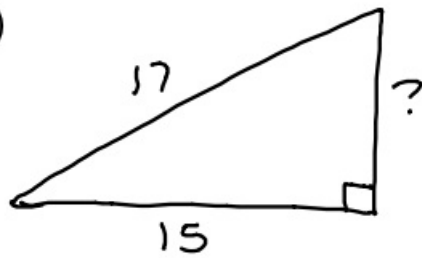


- ③ C is midpoint  $\overline{PN}$ . If  $P=(-2,6)$  and  $C=(4,3)$ , where is N?



8-22-19 7<sup>th</sup> Geo

①



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

$$15^2 + \text{leg}^2 = 17^2$$

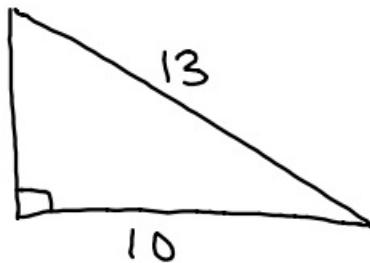
$$225 + \text{leg}^2 = 289$$

$$\begin{array}{r} -225 \qquad \qquad -225 \\ \hline \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{64}$$

$$\text{leg} = 8$$

②



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

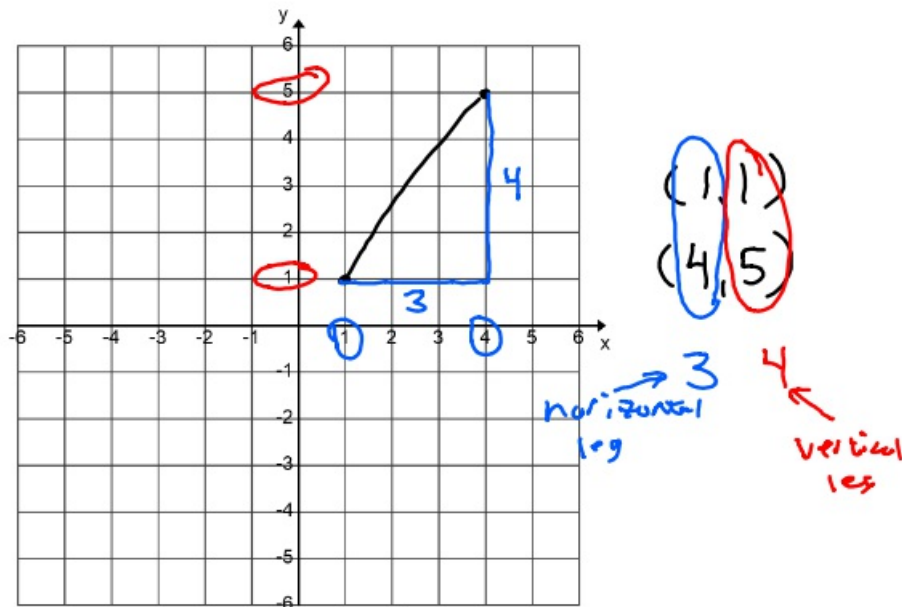
$$10^2 + \text{leg}^2 = 13^2$$

$$100 + \text{leg}^2 = 169$$

$$\begin{array}{r} -100 \qquad \qquad -100 \\ \hline \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{69}$$

$$\text{leg} \approx 8.3$$



$$\text{Distance} = \sqrt{\Delta x^2 + \Delta y^2}$$

③ What is the distance from (2, 3) to (7, 13)?

$$- \begin{matrix} (2, 3) \\ (7, 13) \end{matrix}$$

5   10

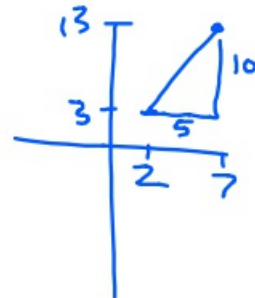
$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

$$5^2 + 10^2 = \text{hyp}^2$$

$$25 + 100 = \text{hyp}^2$$

$$\sqrt{125} = \sqrt{\text{hyp}^2}$$

$$\text{hyp} = 11.2$$



$$D = \sqrt{\Delta x^2 + \Delta y^2}$$

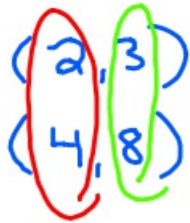
$$= \sqrt{5^2 + 10^2}$$

$$= \sqrt{25 + 100}$$

$$= \sqrt{125}$$

$$\approx 11.2$$

- ④ Find the distance from  $(2, 3)$  to  $(4, 8)$ .



$$\begin{aligned} \text{leg}^2 + \text{leg}^2 &= \text{hyp}^2 \\ 2^2 + 5^2 &= \text{hyp}^2 \\ 4 + 25 &= \text{hyp}^2 \\ \sqrt{29} &= \sqrt{\text{hyp}^2} \\ \text{hyp} &\approx 5.4 \end{aligned}$$

$$\begin{aligned} D &= \sqrt{\Delta x^2 + \Delta y^2} \\ &= \sqrt{2^2 + 5^2} \\ &= \sqrt{4 + 25} \\ &= \sqrt{29} \\ &\approx 5.4 \end{aligned}$$

- ⑤ A triangle has side lengths of 12, 15, and 10. Is it a right triangle?

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

$$10^2 + 12^2 = 15^2 \quad ?$$

$$100 + 144 = 225$$

$$244 = 225 \quad \times$$

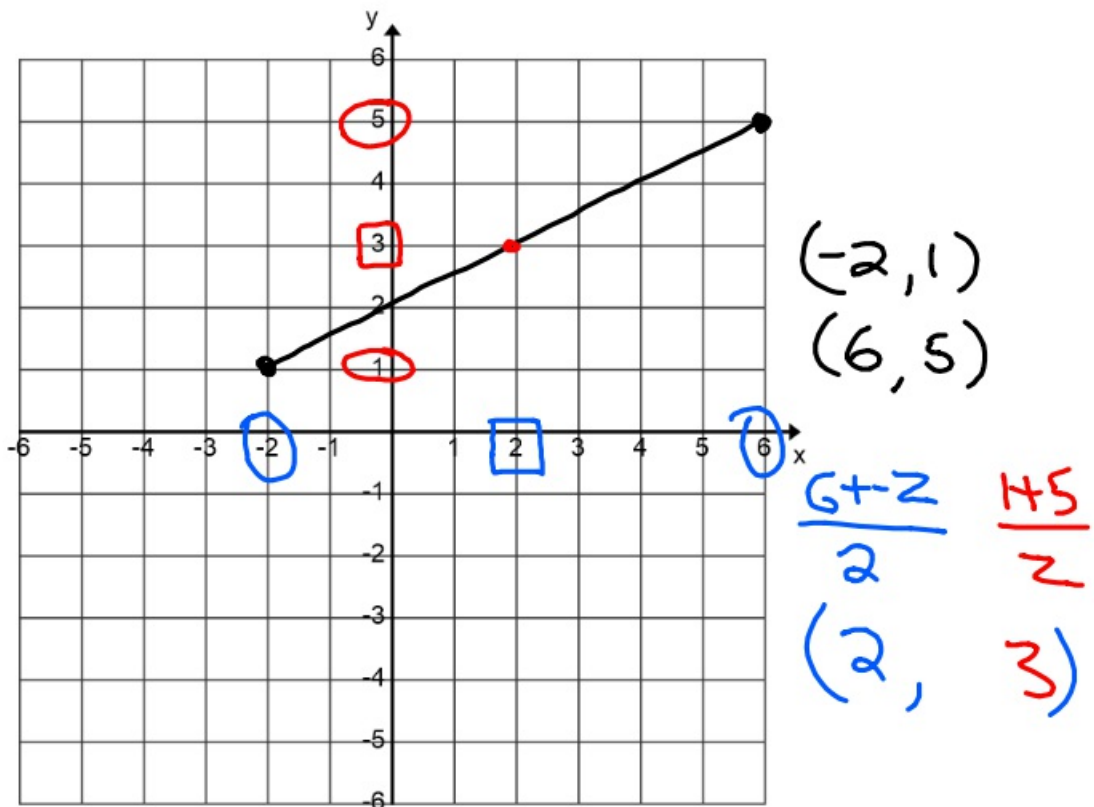
This is NOT a right  $\Delta$ .



Next Concept

How do we find the middle of your age and my age?

$$49 + 11 = \frac{60}{2} = 30$$



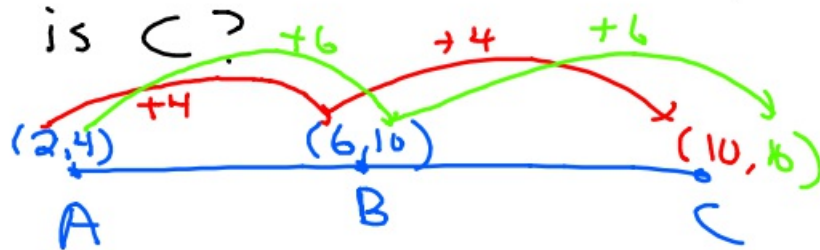
$$\text{Midpoint} = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

③ Give midpoint of  $\overline{AC}$  if  
 $A = (2, 3)$  and  $C = (10, 10)$

$$\text{midpoint} = \left( \frac{2+10}{2}, \frac{3+10}{2} \right)$$

$$(6, 5)$$

④ On  $\overline{AC}$ ,  $B$  is the midpoint. If  
 $A = (2, 4)$  and  $B = (6, 10)$ , what  
is  $C$ ?



⑤ On  $\overline{DT}$ ,  $M$  is the midpoint.

If  $D = (-4, 10)$  and  $M = (-2, 5)$ ,  
where is  $T$ ?

