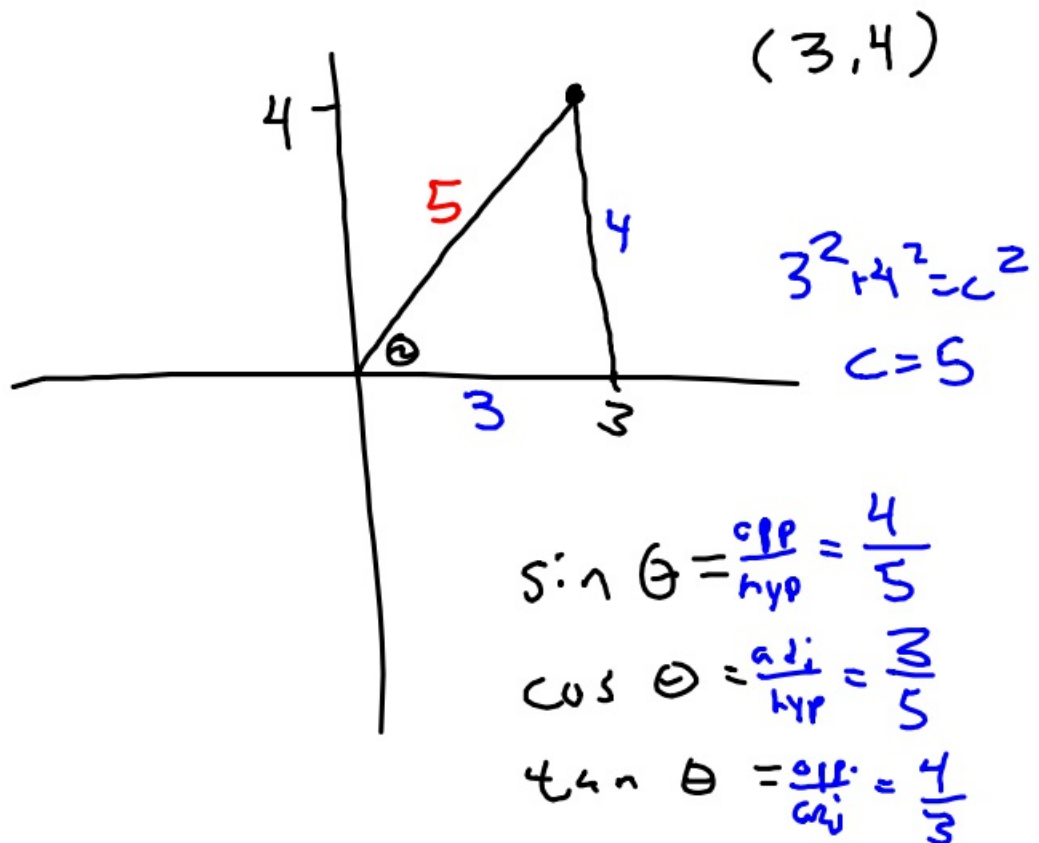
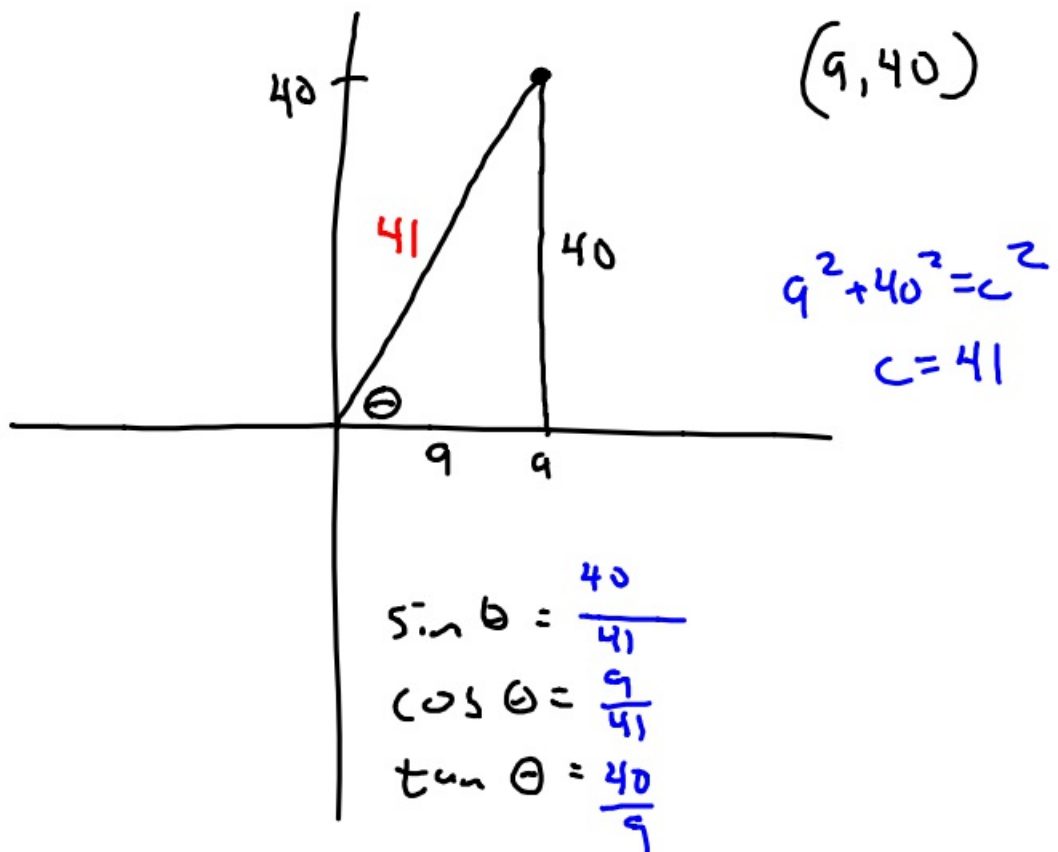


2-27-18 1<sup>st</sup> Trig

①

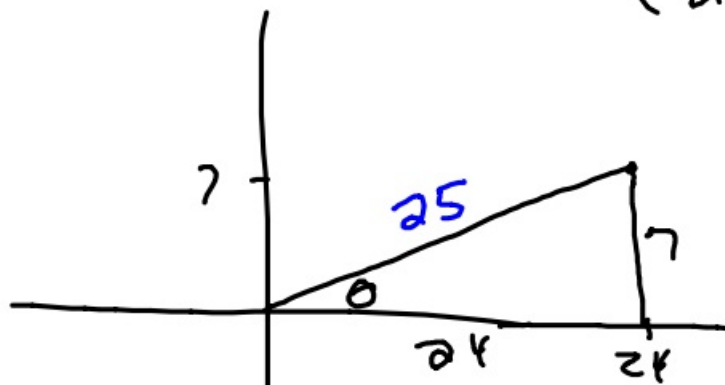


②



③

(24, 7)



$$7^2 + 24^2 = c^2$$

$$c = 25$$

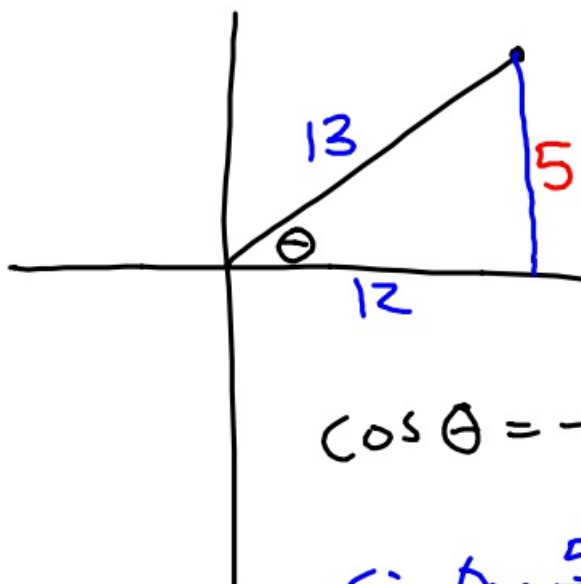
$$\sin \theta = \frac{7}{25}$$

$$\cos \theta = \frac{24}{25}$$

$$\tan \theta = \frac{7}{24}$$

④

Find  $\sin \theta$  if  $\cos \theta = \frac{12}{13}$  and terminal side of  $\theta$  is in the 1<sup>st</sup> quad.



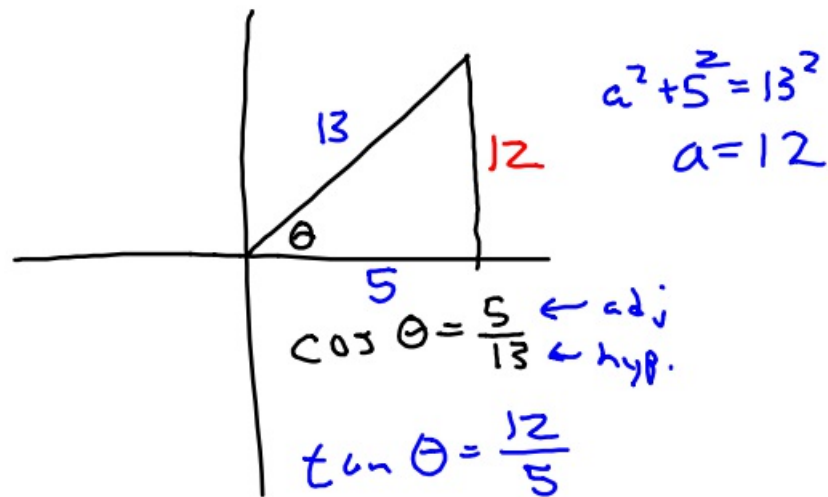
$$a^2 + 12^2 = 13^2$$

$$a = 5$$

$$\cos \theta = \frac{12}{13} \leftarrow \text{adj} \leftarrow \text{hyp}$$

$$\sin \theta = \frac{5}{13}$$

- ⑤ Find  $\tan \theta$  if  $\cos \theta = \frac{5}{13}$  and terminal side of  $\theta$  is in the 1<sup>st</sup> quadrant.



$$\sin \theta = \frac{\text{opp.}}{\text{hyp.}} \quad \csc \theta = \frac{\text{hyp.}}{\text{opp.}}$$

$$\cos \theta = \frac{\text{adj.}}{\text{hyp.}} \quad \sec \theta = \frac{\text{hyp.}}{\text{adj.}}$$

$$\tan \theta = \frac{\text{opp.}}{\text{adj.}} \quad \cot \theta = \frac{\text{adj.}}{\text{opp.}}$$

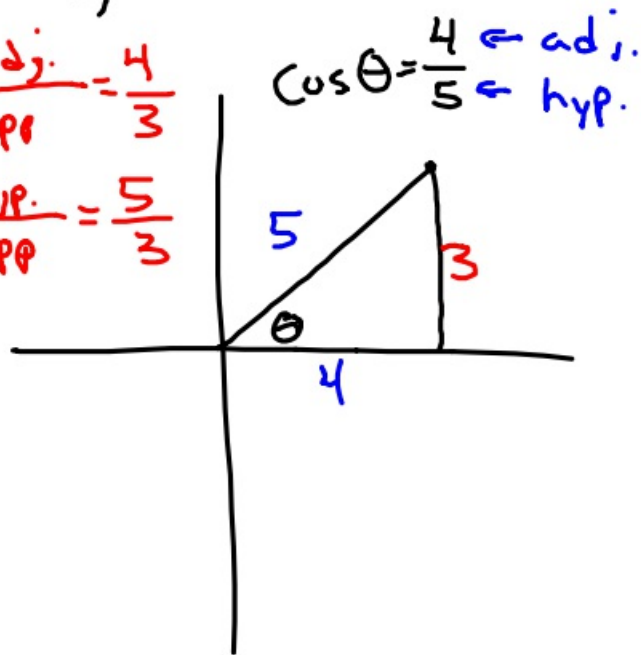
- ⑥ If  $\sin \theta = \frac{11}{15}$ , what is the  $\csc \theta$ ?

Since  $\csc \theta$  is reciprocal of  $\sin \theta$ ,  $\csc \theta = \frac{15}{11}$ .

⑦ If  $\cos \theta = \frac{4}{5}$  and terminal side of  $\theta$  is in the 1<sup>st</sup> quadrant, find

a.)  $\cot \theta = \frac{\text{adj.}}{\text{opp.}} = \frac{4}{3}$

b.)  $\csc \theta = \frac{\text{hyp.}}{\text{opp.}} = \frac{5}{3}$

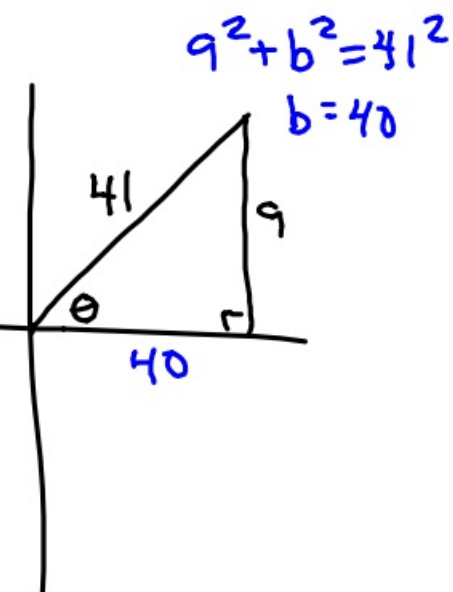


⑧ If  $\sin \theta = \frac{9}{41}$  and terminal side of  $\theta$  is in the 1<sup>st</sup> quadrant, find

a.)  $\cot \theta = \frac{\text{adj.}}{\text{opp.}} = \frac{40}{9}$

b.)  $\sec \theta = \frac{\text{hyp.}}{\text{adj.}} = \frac{41}{40}$

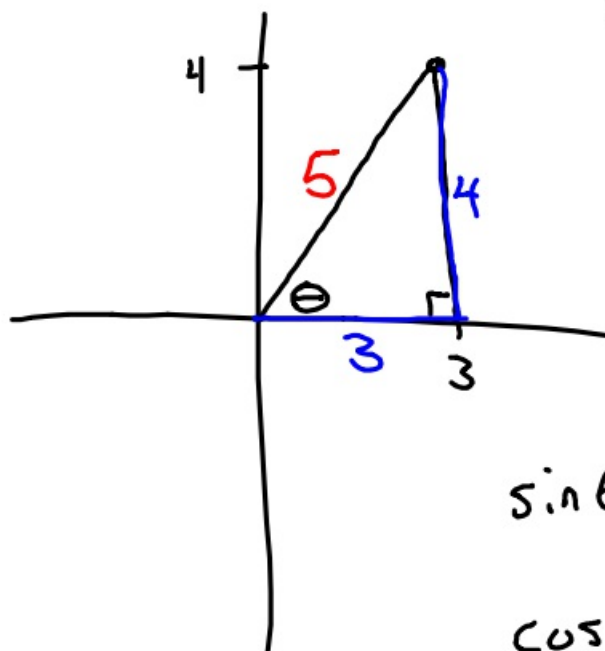
c.)  $\csc \theta = \frac{\text{hyp.}}{\text{opp.}} = \frac{41}{9}$



2-27-18

3<sup>rd</sup> Trig

①



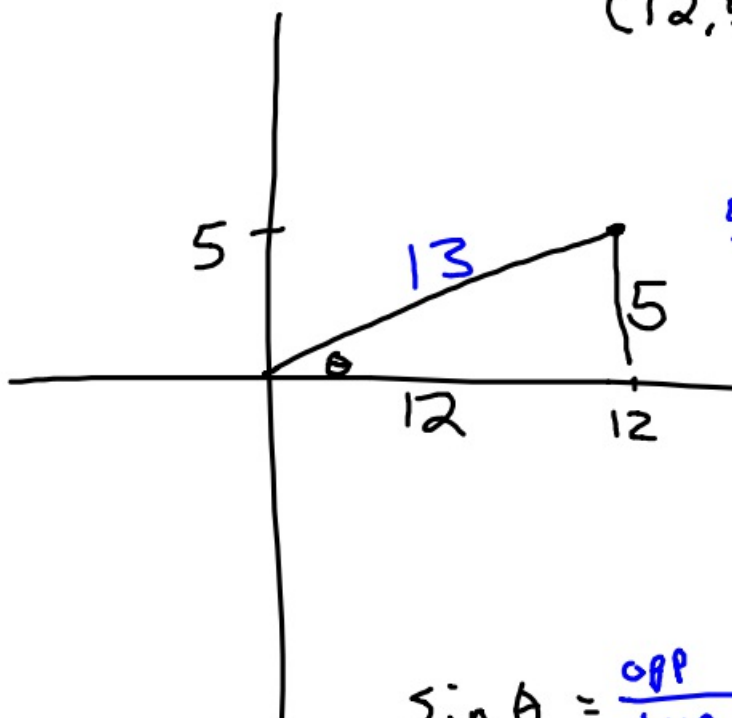
(3,4)

$$3^2 + 4^2 = c^2$$
$$5 = c$$

$$\sin \theta = \frac{\text{opp.}}{\text{hyp}} = \frac{4}{5}$$

$$\cos \theta = \frac{\text{adj.}}{\text{hyp}} = \frac{3}{5}$$

②



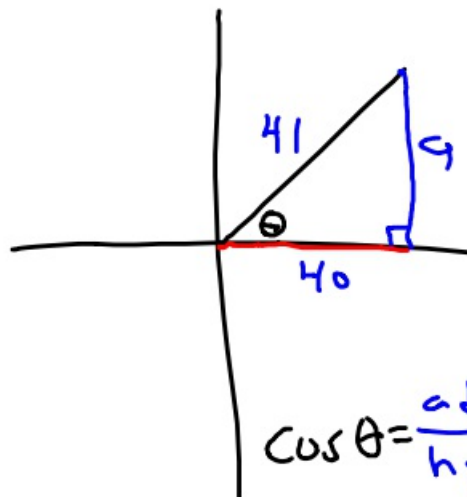
(12,5)

$$5^2 + 12^2 = c^2$$
$$169 = c^2$$
$$c = 13$$

$$\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{5}{13}$$

$$\cos \theta = \frac{\text{adj.}}{\text{hyp}} = \frac{12}{13}$$

- ③ Find  $\cos \theta$  when  $\sin \theta = \frac{9}{41}$  and the terminal side of  $\theta$  is in the 1<sup>st</sup> quadrant.



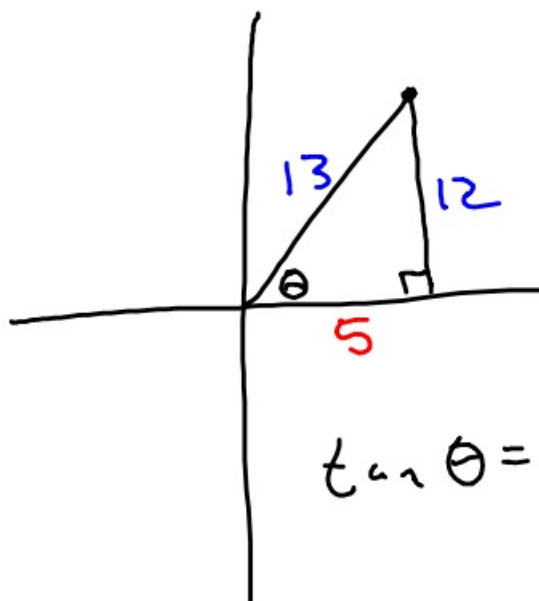
$$a^2 + 9^2 = 41^2$$

$$a^2 + 81 = 1681$$

$$\begin{array}{r} -81 \\ \hline \sqrt{a^2} = \sqrt{1600} \\ a = 40 \end{array}$$

$$\cos \theta = \frac{\text{adj.}}{\text{hyp}} = \frac{40}{41}$$

- ④ Find  $\tan \theta$  if  $\sin \theta = \frac{12}{13}$  and the terminal side of  $\theta$  is in 1<sup>st</sup> quadrant.



$$\sin \theta = \frac{12}{13}$$

$$a^2 + 12^2 = 13^2$$

$$a = 5$$

$$\tan \theta = \frac{\text{opp.}}{\text{adj.}} = \frac{12}{5}$$

$$\sin \theta = \frac{\text{opp.}}{\text{hyp.}}$$

$$\csc \theta = \frac{\text{hyp.}}{\text{opp.}}$$

$$\cos \theta = \frac{\text{adj.}}{\text{hyp.}}$$

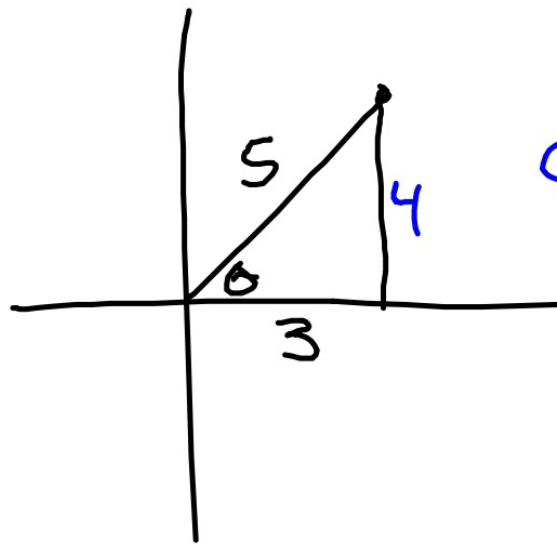
$$\sec \theta = \frac{\text{hyp.}}{\text{adj.}}$$

$$\tan \theta = \frac{\text{opp.}}{\text{adj.}}$$

$$\cot \theta = \frac{\text{adj.}}{\text{opp.}}$$

⑤ If  $\sin \theta = \frac{111}{172}$ , what is  $\csc \theta$ ?  $\frac{172}{111}$

⑥ Find  $\csc \theta$  if  $\cos \theta = \frac{3}{5}$  and terminal side of  $\theta$  is in 1<sup>st</sup> quad.

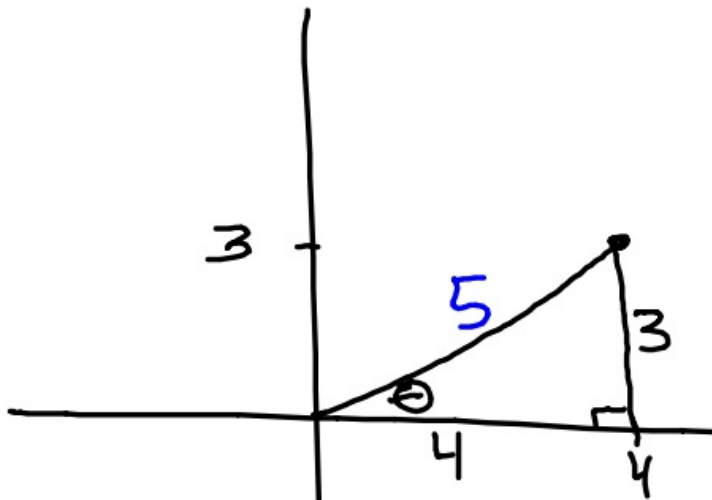


$$\csc \theta = \frac{\text{hyp.}}{\text{opp.}} = \frac{5}{4}$$



2-27-18 4<sup>th</sup> Trig  
(4, 3)

①



$$3^2 + 4^2 = c^2$$

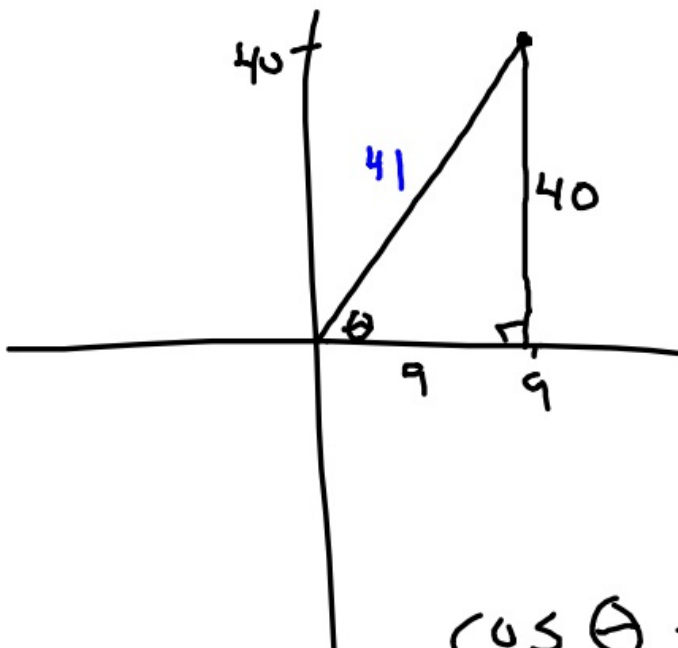
$$25 = c^2$$

$$5 = c$$

$$\sin \theta = \frac{\text{opp.}}{\text{hyp}} = \frac{3}{5}$$

②

(9, 40)



$$9^2 + 40^2 = c^2$$

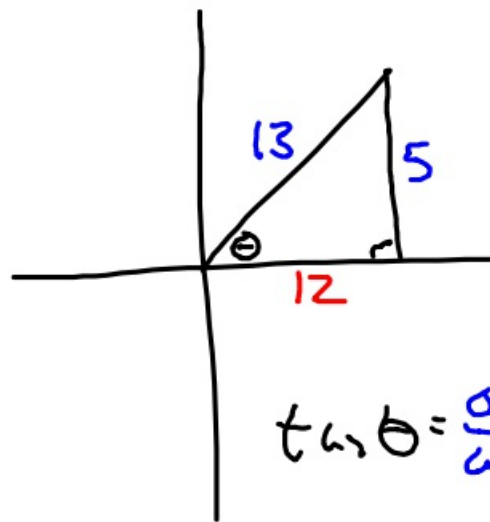
$$1681 = c^2$$

$$c = 41$$

$$\cos \theta = \frac{\text{adj.}}{\text{hyp}} = \frac{9}{41}$$

③ If  $\sin \theta = \frac{5}{13}$  and the terminal side of  $\theta$  is in the 1<sup>st</sup> quadrant, find  $\tan \theta$ .

$$\sin \theta = \frac{5}{13} \begin{array}{l} \leftarrow \text{opp} \\ \leftarrow \text{hyp} \end{array}$$

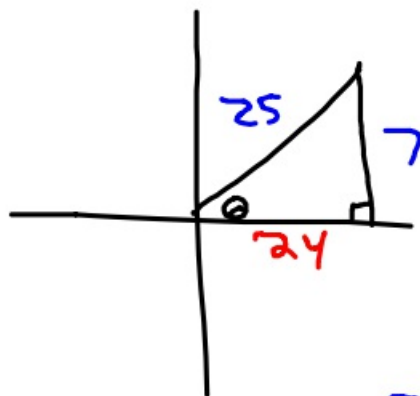


$$\begin{aligned} a^2 + 5^2 &= 13^2 \\ a &= 12 \end{aligned}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{5}{12}$$

④ If  $\sin \theta = \frac{7}{25}$  and the terminal side of  $\theta$  is in the 1<sup>st</sup> quadrant, find  $\tan \theta$ .

$$\sin \theta = \frac{7}{25} \begin{array}{l} \leftarrow \text{opp} \\ \leftarrow \text{hyp} \end{array}$$



$$7^2 + a^2 = 25^2$$

$$a = 24$$

$$\tan \theta = \frac{7}{24}$$

$$\cos \theta = \frac{\text{adj.}}{\text{hyp.}} \quad \sec \theta = \frac{\text{hyp.}}{\text{adj.}}$$

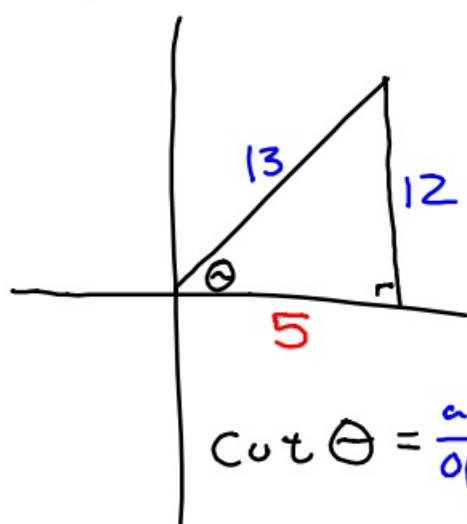
$$\sin \theta = \frac{\text{opp.}}{\text{hyp.}} \quad \csc \theta = \frac{\text{hyp.}}{\text{opp.}}$$

$$\tan \theta = \frac{\text{opp.}}{\text{adj.}} \quad \cot \theta = \frac{\text{adj.}}{\text{opp.}}$$

⑤ If the  $\cos \theta = \frac{112}{584}$ , what is  $\sec \theta$ ?

Since  $\sec \theta$  is reciprocal of  $\cos \theta$ ,  $\sec \theta = \frac{584}{112}$

⑥ If  $\sin \theta = \frac{12}{13}$  and the terminal side of  $\theta$  is in the 1<sup>st</sup> quadrant, find  $\cot \theta$ ?



$$\sin \theta = \frac{12}{13} \leftarrow \text{opp}$$
$$13 \leftarrow \text{hyp}$$

$$a^2 + 12^2 = 13^2$$

$$a = 5$$

$$\cot \theta = \frac{\text{adj.}}{\text{opp.}} = \frac{5}{12}$$