

# 3-5-18 1<sup>st</sup> Trig

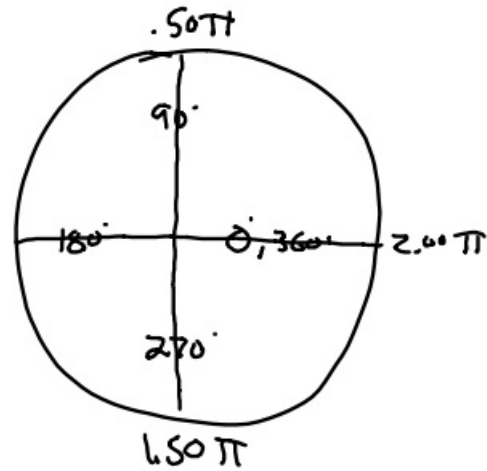
In which quadrant are the following.

①  $190^\circ$  III

②  $-100^\circ$  III

③  $\frac{3\pi}{5}$   $.6\pi \rightarrow$  II

④  $\frac{7\pi}{3}$   $2.33\pi \rightarrow$  I



Change from radian to degrees or vice-versa.

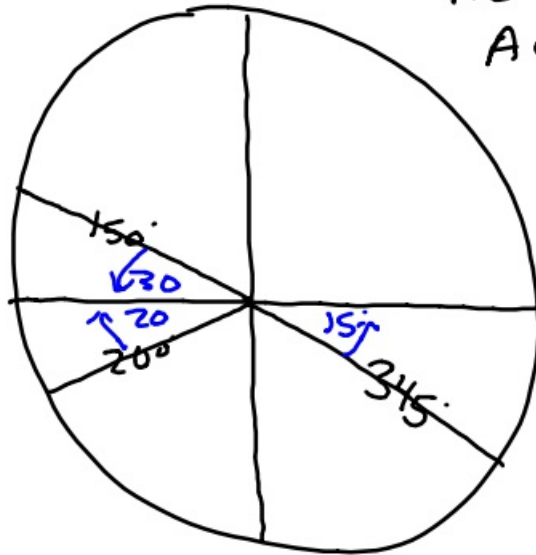
⑤  $140^\circ \cdot \frac{\pi}{180^\circ} = \frac{140\pi}{180} = \frac{7\pi}{9}$

⑥  $\frac{\pi}{5} \cdot \frac{180}{\pi} = \frac{180}{5} = 36^\circ$

⑦  $\frac{5\pi}{6} \cdot \frac{180^\circ}{\pi} = \frac{900}{6} = 150^\circ$

⑧  $300^\circ \cdot \frac{\pi}{180^\circ} = \frac{5\pi}{3}$

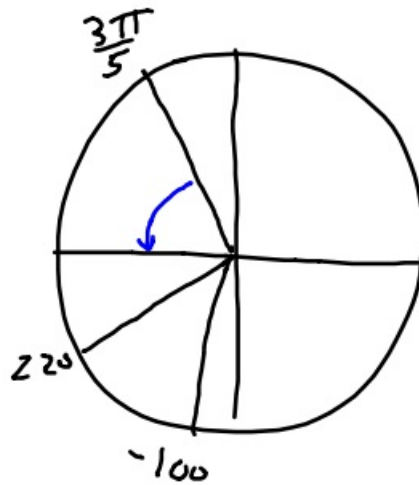
Reference Angle



⑨  $220^\circ$   $40^\circ$

⑩  $-100^\circ$   $80^\circ$

⑪  $\frac{3\pi}{5}$   $\frac{2\pi}{5}$



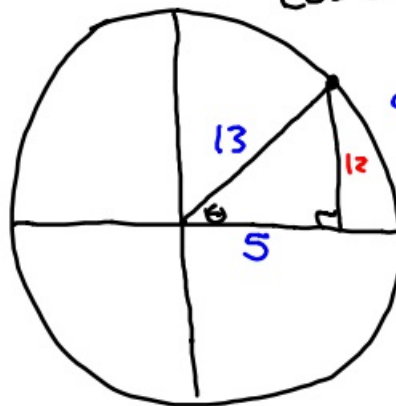
⑫ When  $\cos \theta = \frac{5}{13}$  and terminal side of  $\theta$  is in the 1<sup>st</sup> Quadrant find  $\tan \theta$ ,  $\csc \theta$ ,  $\sec \theta$ , &  $\sin \theta$ .

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

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

$$\sec \theta = \frac{\text{hyp}}{\text{adj}} = \frac{13}{5}$$

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



$$\cos \theta = \frac{5}{13} \leftarrow \text{adj} / \text{hyp}$$

$$a^2 + 5^2 = 13^2$$

$$a^2 + 25 = 169$$

$$a^2 = 144$$

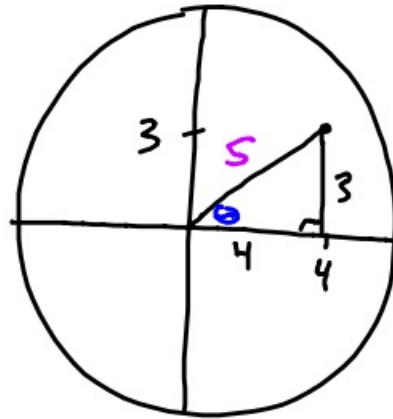
$$a = 12$$

⑬ (4, 3)

$$\sin \theta = \frac{3}{5}$$

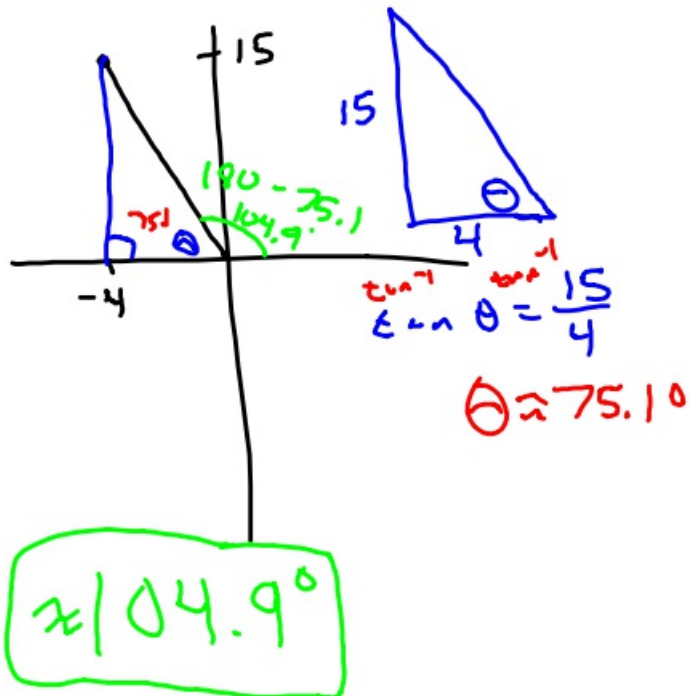
$$\cos \theta = \frac{4}{5}$$

$$\tan \theta = \frac{3}{4}$$



⑭ Determine the angle formed with the x-axis in the 1<sup>st</sup> Q.

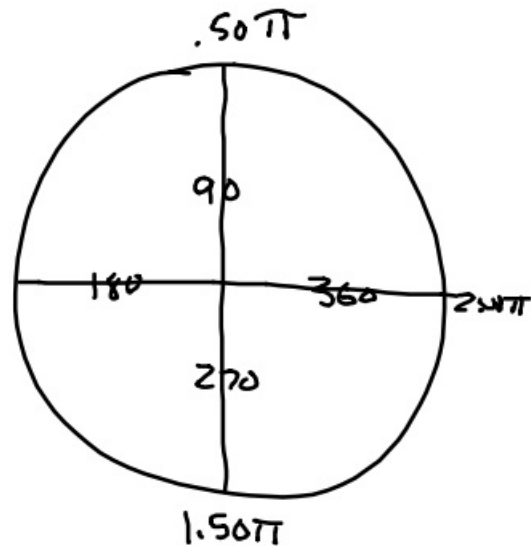
(-4, 15).



## 3-5-18 3<sup>rd</sup> Trig

In which quadrant are  
the following:

- ①  $148^\circ$  II
- ②  $-150^\circ$  III
- ③  $\frac{2\pi}{5}$  ( $.40\pi$ ) I  $1.02\pi$
- ④  $\frac{9\pi}{4}$  ( $2.25\pi$ ) I



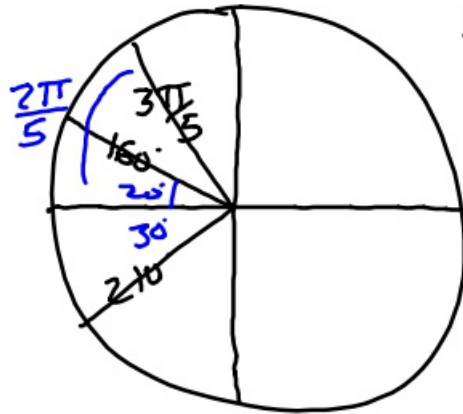
Change to degrees or radians.

$$\textcircled{5} \quad 70^\circ \cdot \frac{\pi}{180^\circ} = \frac{70\pi}{180} = \frac{7\pi}{18}$$

$$\textcircled{6} \quad \frac{\pi}{5} \cdot \frac{180^\circ}{\pi} = \frac{180^\circ}{5} = 36^\circ$$

$$\textcircled{7} \quad \frac{2\pi}{9} \cdot \frac{180^\circ}{\pi} = \frac{360^\circ}{9} = 40^\circ$$

Reference  
Angle

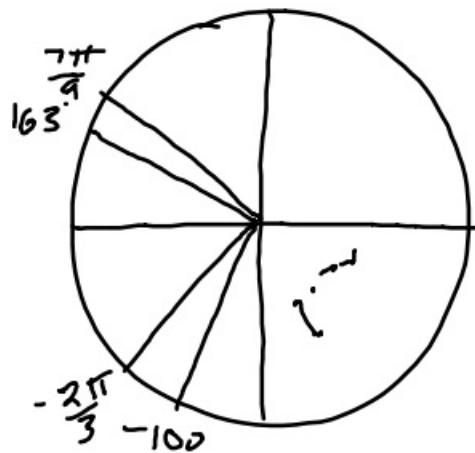


⑧  $163^\circ \rightarrow 17^\circ$

⑨  $-100 \rightarrow 80^\circ$

⑩  $\frac{7\pi}{9} \rightarrow \frac{2\pi}{9}$

⑪  $-\frac{2\pi}{3} \rightarrow \frac{\pi}{3}$



Coterminal

Are these coterminal

⑫  $200^\circ$  and  $920^\circ$

$$920^\circ - 200^\circ = \frac{720^\circ}{360} = 2 \quad \text{Yes}$$

⑬  $\frac{9\pi}{10}$  and  $\frac{19\pi}{10}$

$$\frac{19\pi}{10} - \frac{9\pi}{10} = \frac{10\pi}{10} = \pi$$

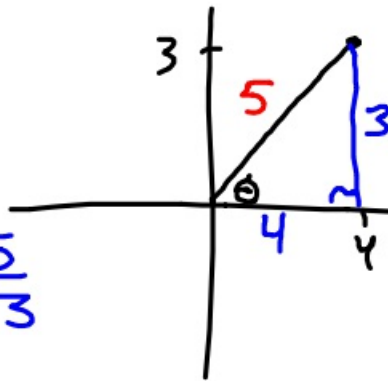
NO

$$\textcircled{14} (4, 3)$$

$$\sin \theta = \frac{3}{5}$$

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

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

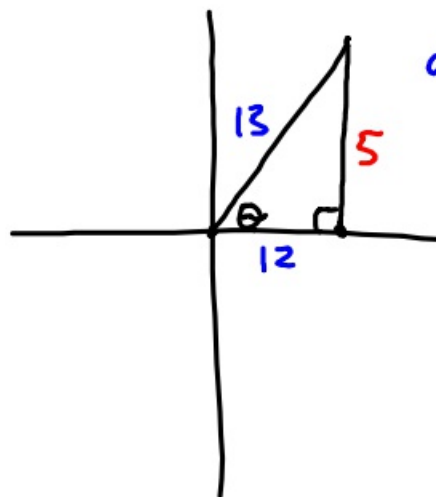


$$\textcircled{15} \text{ When } \cos \theta = \frac{12}{13}, \text{ find}$$

$$\tan \theta = \frac{5}{12}$$

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

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



$$a^2 + 12^2 = 13^2$$
$$a^2 = 25$$
$$a = 5$$

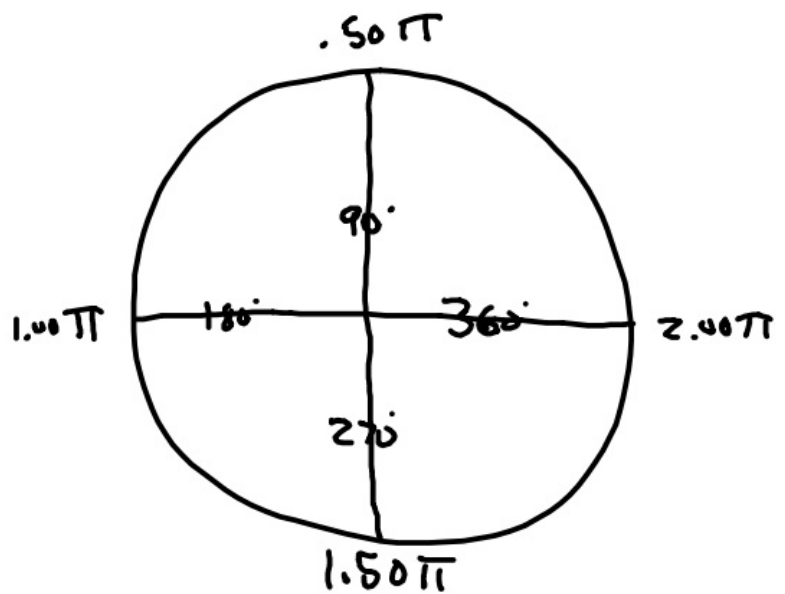
# 3-5-18 4<sup>th</sup> Trig

①  $370^\circ$  I

②  $-150^\circ$  III

③  $\frac{2\pi}{5}$  ( $.40\pi$ ) I

④  $\frac{7\pi}{5}$  ( $1.40\pi$ ) III



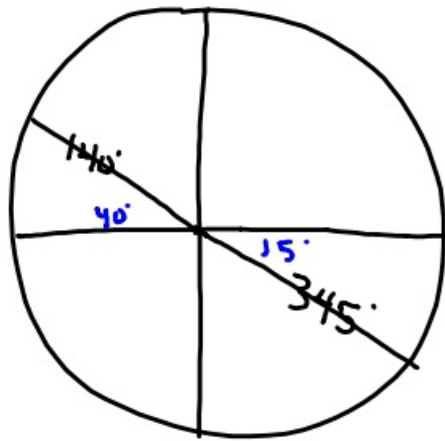
Change to radians or degrees.

⑤  $40^\circ \cdot \frac{\pi}{180^\circ} = \frac{40\pi}{180} = \frac{2\pi}{9}$

⑥  $\frac{\pi}{18} \cdot \frac{180^\circ}{\pi} = \frac{180}{18} = 10^\circ$

⑦  $\frac{3\pi}{5} \cdot \frac{180^\circ}{\pi} = \frac{540^\circ}{5} = 108^\circ$

# Reference Angles

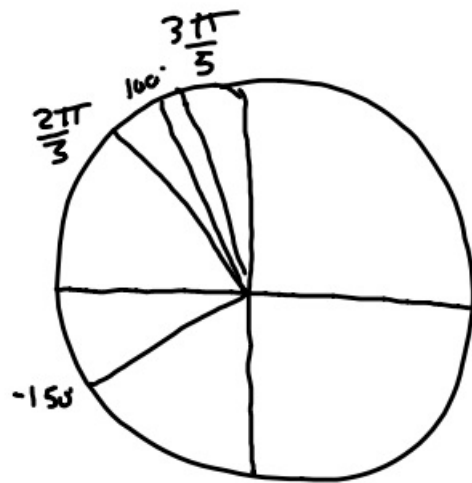


⑧  $100^\circ$   $80^\circ$

⑨  $-150^\circ$   $30^\circ$

⑩  $\frac{2\pi}{3}$   $\frac{\pi}{3}$

⑪  $\frac{3\pi}{5}$   $\frac{2\pi}{5}$

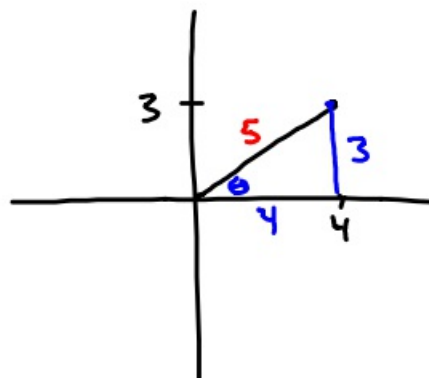


⑫  $(4, 3)$

$$\sin \theta = \frac{3}{5}$$

$$\cos \theta = \frac{4}{5}$$

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



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

$$25 = c^2$$

$$5 = c$$

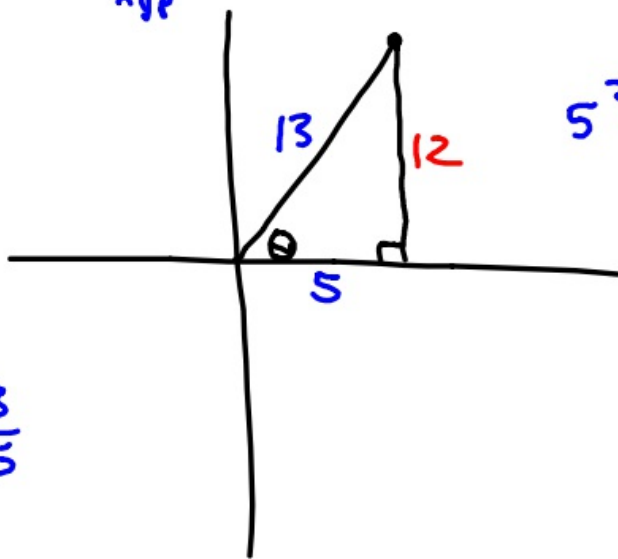


(13) If  $\cos \theta = \frac{5}{13}$ , find

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

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

$$\sec \theta = \frac{\text{hyp.}}{\text{adj.}} = \frac{13}{5}$$



$$5^2 + b^2 = 13^2$$

$$b^2 = 144$$

$$b = 12$$

(14) Are  $120^\circ$  and  $480^\circ$  coterminal?

$$480 - 120 = 360 \text{ Yes}$$

(15) Are  $550^\circ$  and  $2710^\circ$  coterminal?

$$2710 - 550 = \frac{2160}{360} = 6$$

Yes

(16) Are  $\frac{3\pi}{7}$  and  $\frac{29\pi}{7}$  coterminal?

$$\frac{29\pi}{7} - \frac{3\pi}{7} = \frac{26\pi}{7} = 3\frac{5}{7}\pi$$

NO!