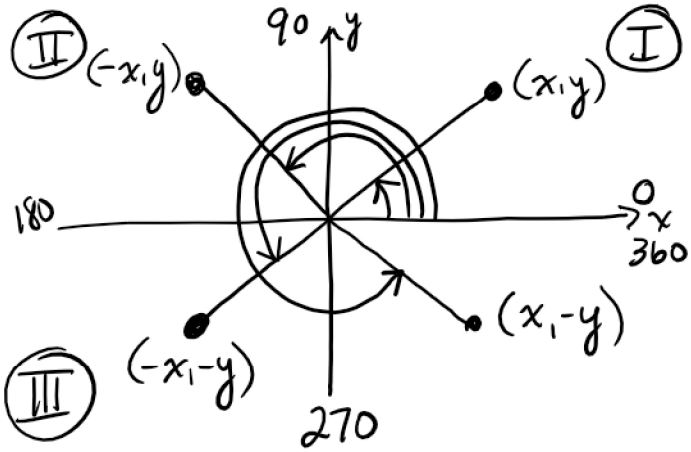
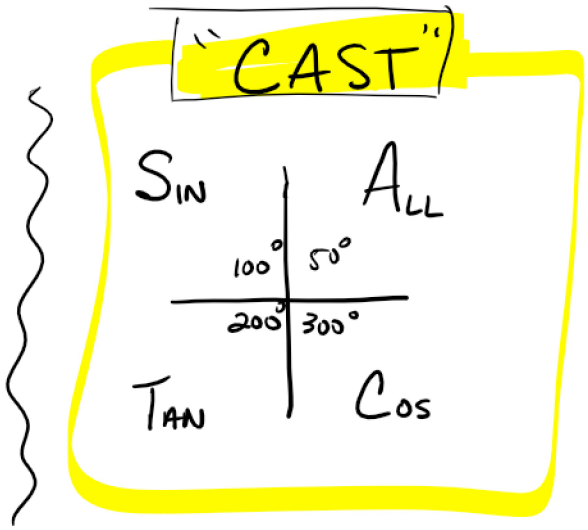
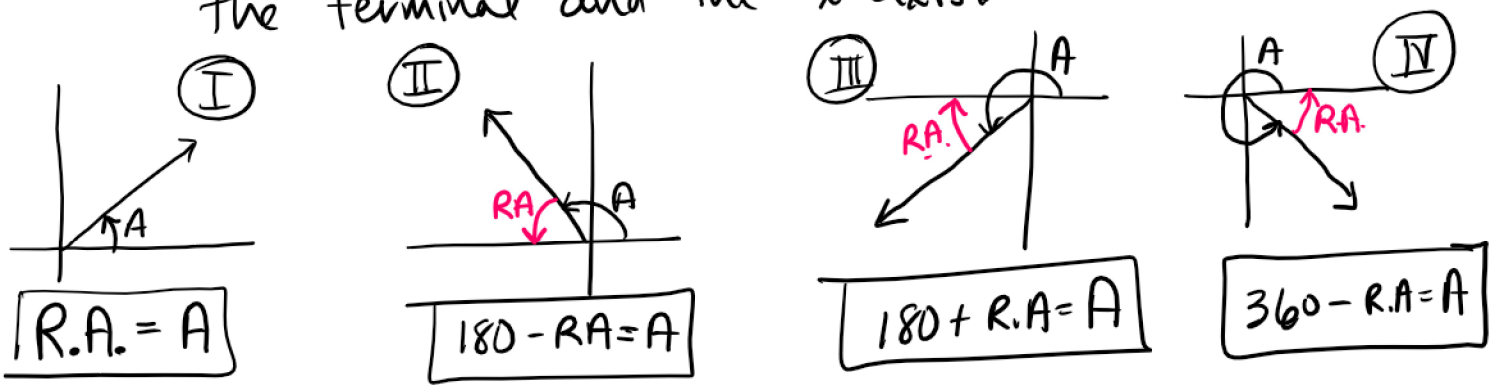
5.2 Angles in Standard Position (all quads)

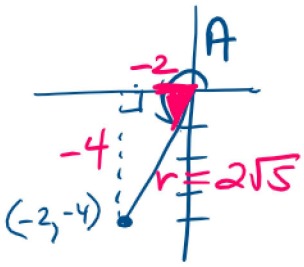




Reference Angle is the acute (0°–90°) angle formed by the terminal and the x-axis.



ex. 1 Point $(-2,-4)$ on terminal arm in standard position.



a) Find r

$r^2 = (-4)^2 + (-2)^2$

$= 16 + 4$

$r^2 = 20$

$r = \sqrt{20} = 2\sqrt{5}$ exact

b) determine exact values of

$\sin A = \frac{-4}{2\sqrt{5}} = \frac{-2}{\sqrt{5}}$

$\cos A = \frac{-2}{2\sqrt{5}} = \frac{-1}{\sqrt{5}}$

$\tan A = \frac{-4}{-2} = 2$

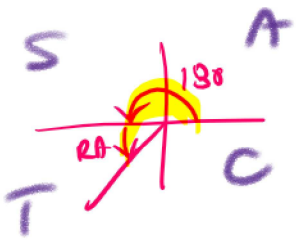
$= \frac{-2}{\sqrt{5}}$ $\qquad = \frac{-1}{\sqrt{5}}$ $\qquad = 2$

c) Find the angle to nearest degree

$\tan A = 2$

$A = 63 \rightarrow$ but Q3 $\rightarrow 180 \rightarrow 270$?

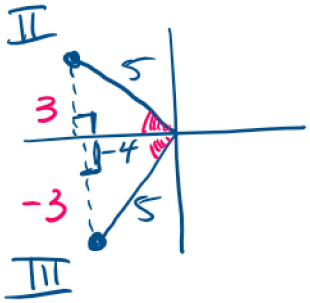
R.A.



$A = 180 + 63 = 243°$

ex. 2 Given $\cos\theta = -\frac{4}{5}$ determine the other two ratios

S	A
T	C



Q2

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

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

Q3

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

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

$\boxed{\text{p427 \# 4-7, 10(2), 16(2)}}$