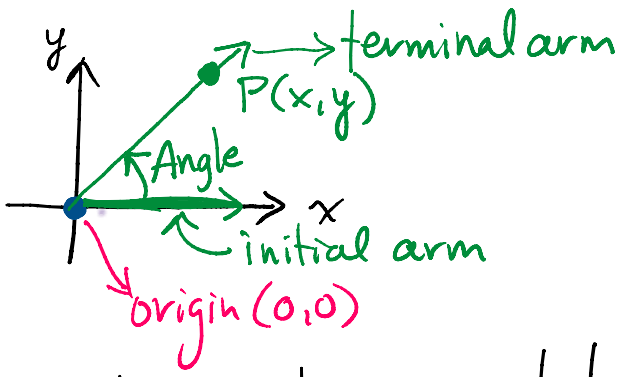
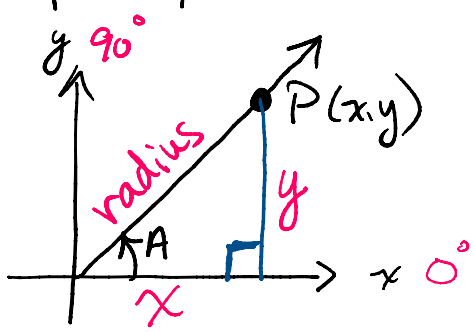
5.1 Angles in Standard Position (Quad 1)

<u>Standard Position</u> is on a coordinate grid. It is the position of an angle with its initial arm on the positive x axis and its vertex at the origin.



Counterclockwise rotation represents a positive angle.
The <u>measure</u> of the angle is the amount of <u>rotation</u> from the <u>initial</u> arm to the <u>terminal</u> arm

You can find any angle if you know the coordinates of a point on the terminal arm.

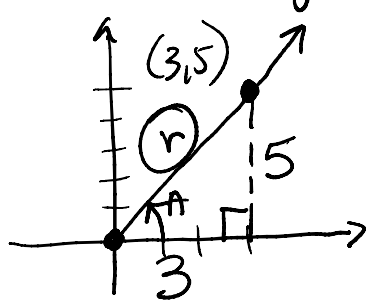


- Point $P(x,y)$ is on terminal arm
- make a right Δ with <u>x-axis</u>

⊛ $r^2 = x^2 + y^2$

$\sin A = \frac{y}{r}$ $\cos A = \frac{x}{r}$ $\tan A = \frac{y}{x}$

ex.1 Point (3,5) is on the terminal arm of an angle in standard position.



a) Find r → exact value

$r^2 = 3^2 + 5^2$

$r^2 = 34$

$r = \sqrt{34}$ ← x (reduce??)

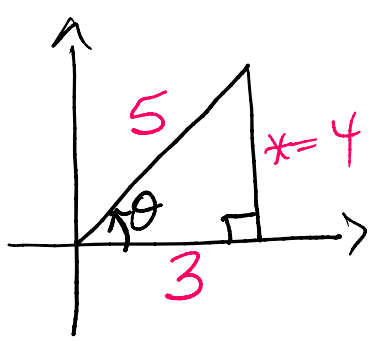
b) $\sin A = \frac{5}{\sqrt{34}}$ $\cos A = \frac{3}{\sqrt{34}}$ $\tan A = \frac{5}{3}$

c) Find <A to nearest degree

<A = 59

ex.2 Given $\cos\theta = \frac{3}{5}$ (adj / hyp.) in quad 1 θ – theta

What are $\sin\theta$, $\tan\theta$?



$5^2 = 3^2 + *^2$

$\boxed{* = 4}$

$\sin\theta = \frac{4}{5}$ $\tan\theta = \frac{4}{3}$

$\boxed{\text{p 409 \# 3-5, 8, 10}}$