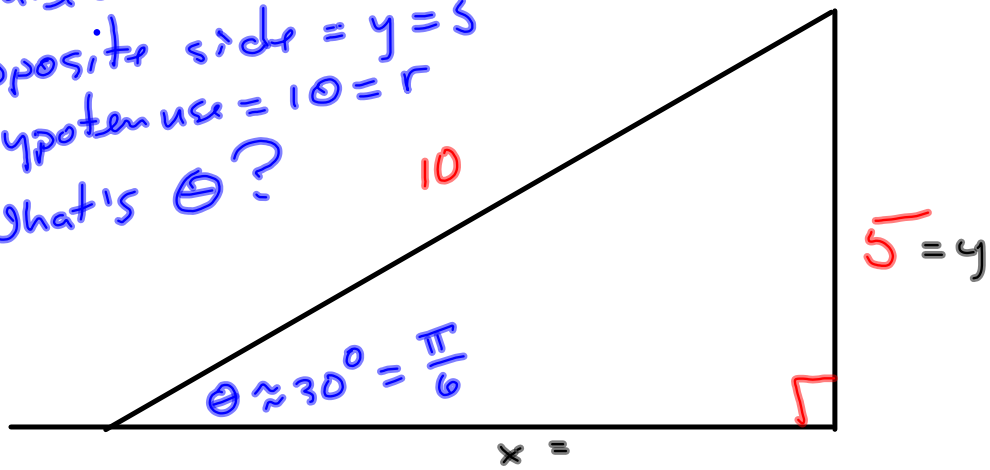
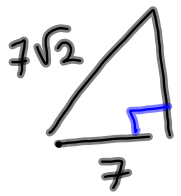
Build a triangle with
opposite side = $y = 5$
hypotenuse = $10 = r$
What's θ?



We'll explore some others, like
$x = 7, y = 7 \Longrightarrow r = ?, \theta = ?$
Pythagorus says $r = \sqrt{7^2 + 7^2} = \sqrt{2(7^2)}$
$= 7\sqrt{2}$



is what to remember.

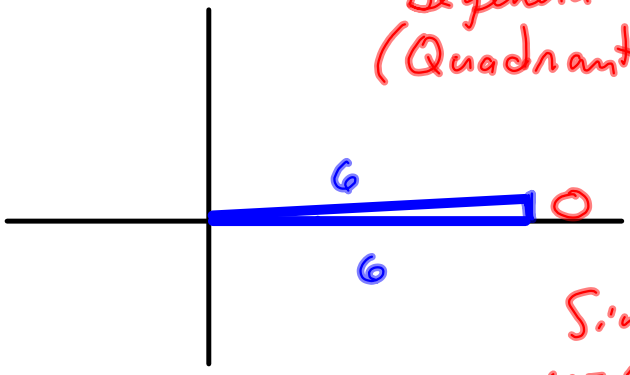
S1.2 #s 2-5 all, 7-49 odds.

Triangle with $x = 6, r = 6$

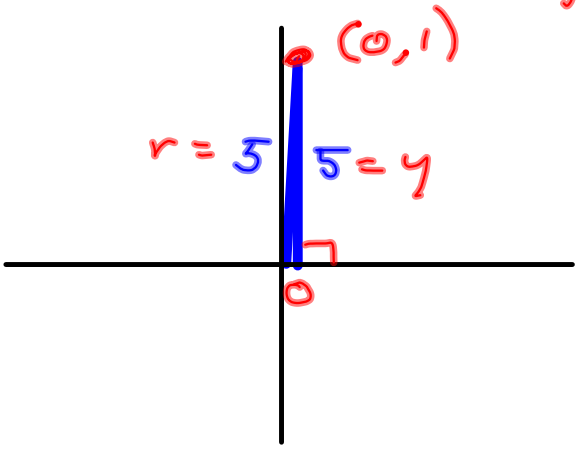
What's y? $y = 0$

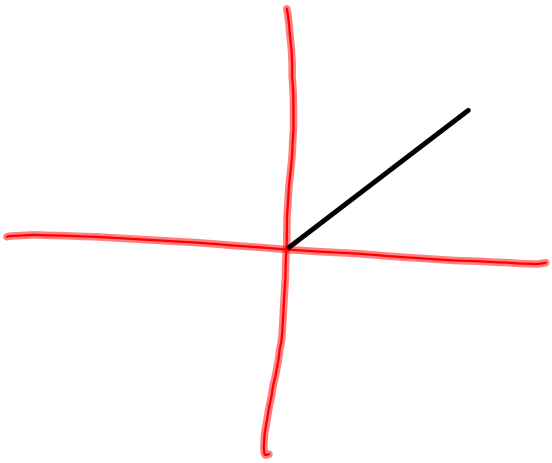
What's θ? $\theta = 0$

Degenerate triangle (Quadrantal)



Similarly $y = 5, r = 5$





Name

122-G11

1.1

$\theta = \frac{163\pi}{6}$ 2 angles coterminal

one pos (α), one neg (β),

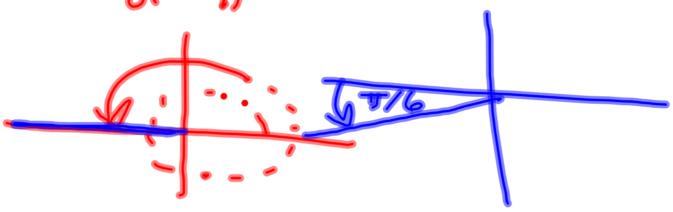
Both Between -2π & $+2\pi$

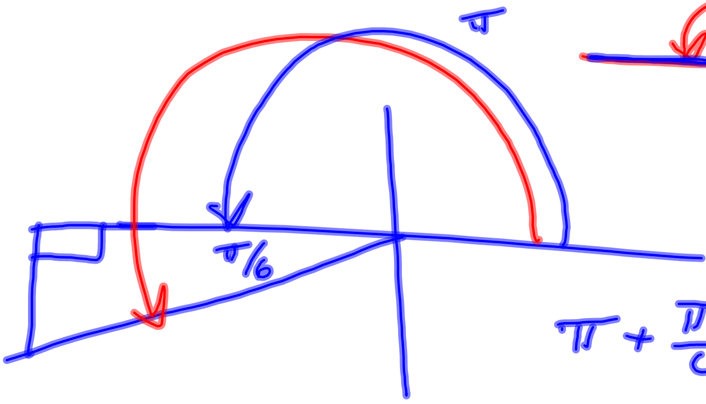
$\frac{163}{6} = 27 + \frac{1}{6} \Longrightarrow \frac{163}{6}\pi = \left(27 + \frac{1}{6}\right)\pi$

$6 \overline{)163.00}$ → $27 \text{ r } 1$

$= 27\pi + \frac{\pi}{6}$

odd multiple of π $+ \frac{\pi}{6}$





$\pi + \frac{\pi}{6} = \frac{7\pi}{6} = \alpha$

Reference triangle

30°–60°

Now, for β:

$\frac{7\pi}{6} - 2\pi = \frac{7-12}{6}\pi$

$= -\frac{5\pi}{6} = \beta$

Same question for 4635°. Make

$-360^\circ < \alpha, \beta < 360^\circ$, $\alpha > 0$, $\beta < 0$

$$\frac{4635}{360} = 12.\text{stuff}$$

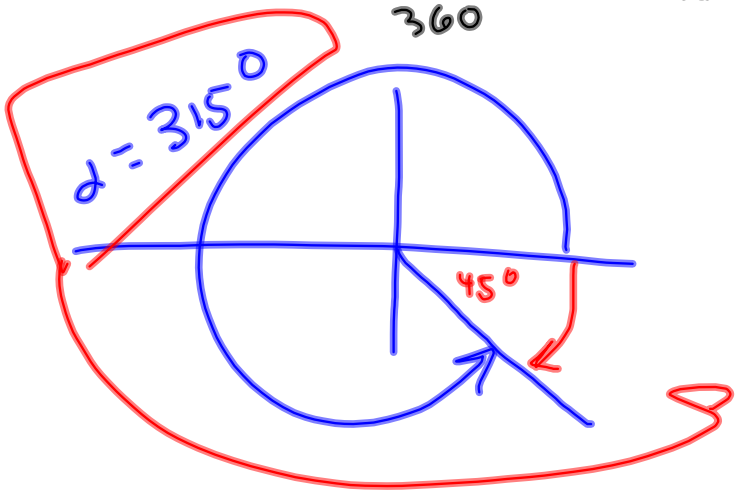
$$(12)(360) = 4320$$

$$\begin{array}{r} 4635 \\ -4320 \\ \hline 315 \end{array}$$

This says $4635 = (12)(360) + 315$

This is 4635° when we "mod out" by 360°.

$$\frac{4635}{360} = 12\frac{315}{360}$$



$\beta = 315 - 360$

$= -45^\circ = \beta$