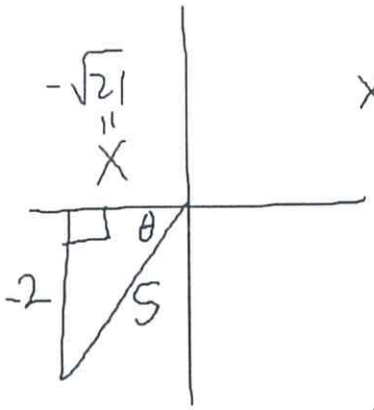
1. Draw triangle in correct quad
2. Label sides using given info
3. Use Pythagorean Thm to get 3rd side
4. Find other trig ratios
5. Verify identity using ratios

Example 2

Given $\sin\theta = \frac{-2}{5}$ in QIII, find $\cos\theta$ & $\tan\theta$, then verify



$x^2 + (-2)^2 = 5^2$

$x^2 + 4 = 25$

$x^2 = 21$

$x = \sqrt{21}$

$\left(\frac{-2}{5}\right)^2 + \left(\frac{-\sqrt{21}}{5}\right)^2$

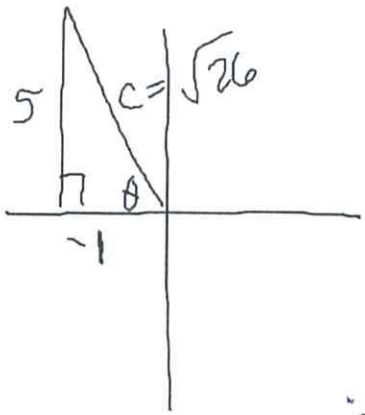
$\frac{4}{25} + \frac{21}{25} = \frac{25}{25} = 1$ ✓

$\cos\theta = \frac{-\sqrt{21}}{5}$

$\tan\theta = \frac{+2}{+\sqrt{21}} \cdot \frac{\sqrt{21}}{\sqrt{21}} = \frac{2\sqrt{21}}{21}$

Example 3

Given $\tan\theta = \frac{-5}{1}$ in QII, find others & verify.



$5^2 + (-1)^2 = c^2$

$c^2 = 25 + 1$

$c^2 = 26$

$c = \sqrt{26}$

$\left(\frac{5}{\sqrt{26}}\right)^2 + \left(\frac{-1}{\sqrt{26}}\right)^2$

$\frac{25}{26} + \frac{1}{26}$

$\frac{26}{26}$

1 ✓

$\sin\theta = \frac{5}{\sqrt{26}} \cdot \frac{\sqrt{26}}{\sqrt{26}} = \frac{5\sqrt{26}}{26}$

$\cos\theta = \frac{-1}{\sqrt{26}} \cdot \frac{\sqrt{26}}{\sqrt{26}} = \frac{-\sqrt{26}}{26}$