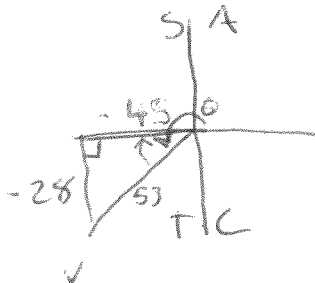


Math 112: #8 A/B

1. Find the values of the remaining five trigonometric functions of θ from the following:

a. $\tan \theta = \frac{28}{45}$ and $\sin \theta < 0$



$$\sin \theta = -\frac{28}{53} \quad \csc \theta = -\frac{53}{28}$$

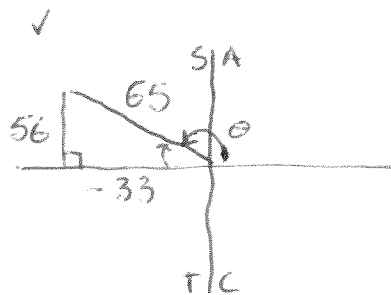
$$(-28)^2 + (-45)^2 = 2809$$

$$\cos \theta = -\frac{45}{53} \quad \sec \theta = -\frac{53}{45}$$

$$\sqrt{2809} = 53$$

$$\cot \theta = \frac{45}{28}$$

b. $\sec \theta = -\frac{65}{33}$ and $\csc \theta > 0$



$$\sin \theta = \frac{56}{65} \quad \csc \theta = \frac{65}{56}$$

$$\cos \theta = -\frac{33}{65}$$

$$(-33)^2 + b^2 = (65)^2$$

$$b^2 = (65)^2 - (-33)^2$$

$$b^2 = 3136$$

$$\tan \theta = -\frac{56}{33} \quad \cot \theta = -\frac{33}{56}$$

$$b = \sqrt{3136} = 56$$

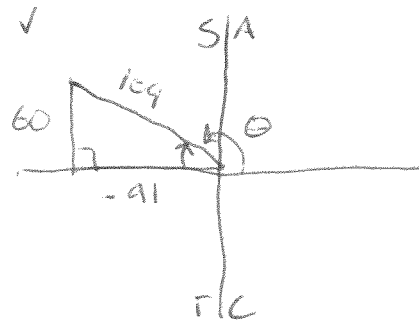
2. Find the values of the remaining five trigonometric functions of θ from the following:

a. $\tan \theta = -\frac{60}{91}$ and $\cos \theta < 0$

$$\sin \theta = \frac{60}{109} \quad \csc \theta = \frac{109}{60}$$

$$\cos \theta = -\frac{91}{109} \quad \sec \theta = \frac{109}{91}$$

$$\cot \theta = -\frac{91}{60}$$



$$(60)^2 + (-91)^2 = 11881$$

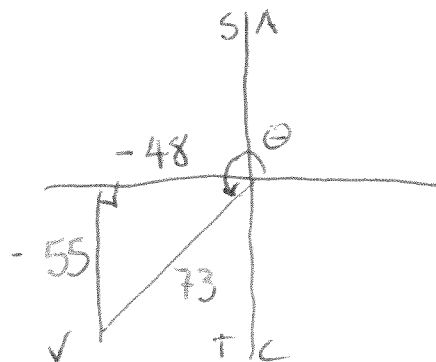
$$\sqrt{11881} = 109$$

b. $\csc \theta = -\frac{73}{55}$ and $\cot \theta > 0$

$$\sin \theta = -\frac{55}{73}$$

$$\cos \theta = -\frac{48}{73} \quad \sec \theta = -\frac{73}{48}$$

$$\tan \theta = \frac{55}{48} \quad \cot \theta = \frac{48}{55}$$



$$a^2 + (-55)^2 = 73^2$$

$$a^2 = 73^2 - (-55)^2$$

$$a^2 = 2304$$

$$a = \sqrt{2304} = 48$$