

Name:

Key

Date: 31 January 2020

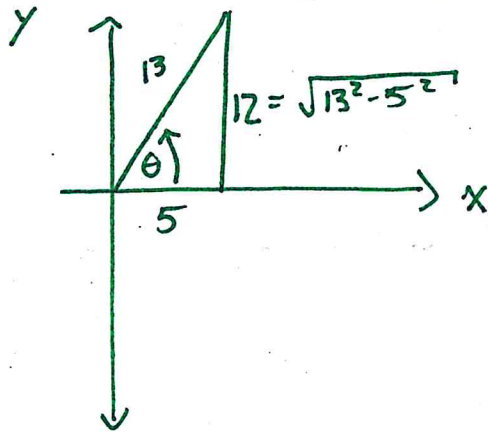
Quiz 1: You must show all work to receive credit. Calculators are prohibited.

- (1) (§1.2, #27, 10 points) Suppose it costs 5¢ per minute to park at an airport, with the rate dropping to 3¢ per minute after 9 pm. Find the cost function $c(t)$ for values of t satisfying $0 \leq t \leq 120$. Assume that t is the number of minutes after 8pm.

$$c(t) = \begin{cases} 5t & ; 0 \leq t < 60 \\ 300 + 3(t-60) & ; 60 \leq t \leq 120 \end{cases} \quad (\text{in cents})$$

- (2) (§1.4, # 93, 10 points) Suppose that $\cos \theta = \frac{5}{13}$ and $0 < \theta < \frac{\pi}{2}$.

- (a) Draw a right triangle that represents the above description. You must label the three triangle sides by their numerical lengths and the correct angle as θ .



- (b) Evaluate the other five trigonometric functions at θ . You must give work or reasoning for each answer.

$$\sin \theta = \frac{y}{r} = \frac{12}{13}$$

$$\csc \theta = \frac{r}{y} = \frac{13}{12}$$

$$\tan \theta = \frac{y}{x} = \frac{12}{5}$$

$$\sec \theta = \frac{r}{x} = \frac{13}{5}$$

$$\cot \theta = \frac{x}{y} = \frac{5}{12}$$