

Trigonometry Quiz #1

pg 1re

Form #2.

* If your item #1 references 4 2 you have form #2.

- I
- | | | | |
|---------------|---------------|------------|------------|
| ① <u>E</u> | ④ <u>C</u> | ⑦ <u>D</u> | ⑨ <u>D</u> |
| ② <u>A</u> | ⑤ <u>Free</u> | ⑧ <u>C</u> | ⑩ <u>E</u> |
| ③ <u>Free</u> | ⑥ <u>B</u> | | |

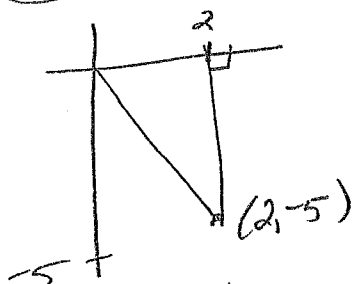
II α and β are alternate exterior angles, so they are equal:

$$\begin{aligned} \alpha = \beta &\Rightarrow 3x + 90 = 5x + 70 \\ &\Rightarrow \frac{-3x - 70}{20} = \frac{-3x - 70}{20} \\ &\Rightarrow 10 = x \end{aligned}$$

$$\begin{aligned} \text{so } \alpha &= 3(10) + 90 \\ &= \boxed{120^\circ} \end{aligned}$$

$$\begin{aligned} \beta &= 5(10) + 70 \\ &= \boxed{120^\circ} \end{aligned}$$

III 12. $P = (2, -5)$



$$\begin{aligned} x &= 2 \checkmark \\ y &= -5 \checkmark \\ r &= \sqrt{(2)^2 + (-5)^2} \\ &= \sqrt{4 + 25} \\ &= \sqrt{29} \checkmark \end{aligned}$$

$$\begin{aligned} \text{so } \sin(\theta) &= -\frac{5}{\sqrt{29}} & \csc(\theta) &= -\frac{\sqrt{29}}{5} \\ \cos(\theta) &= \frac{2}{\sqrt{29}} & \sec(\theta) &= \frac{\sqrt{29}}{2} \\ \tan(\theta) &= -\frac{5}{2} & \cot(\theta) &= -\frac{2}{5} \end{aligned}$$

14 $P(-4, -3)$

$$\begin{aligned} x &= -4 \checkmark \\ y &= -3 \checkmark \\ r &= \sqrt{(-4)^2 + (-3)^2} \\ &= \sqrt{16 + 9} \\ &= \sqrt{25} = 5 \checkmark \end{aligned}$$

$$\begin{aligned} \text{so } \sin(\theta) &= -\frac{3}{5} & \csc(\theta) &= -\frac{5}{3} \\ \cos(\theta) &= -\frac{4}{5} & \sec(\theta) &= -\frac{5}{4} \\ \tan(\theta) &= \frac{-3}{-4} = \frac{3}{4} & \cot(\theta) &= \frac{4}{3} \end{aligned}$$

III

15) Verify $\sin(\theta) = \frac{1}{\csc(\theta)}$

⊕ start with the more complicated side:

$$\begin{aligned}\frac{1}{\csc(\theta)} &= \frac{1}{\frac{r}{y}} \\ &= 1 \cdot \frac{y}{r} \\ &= \frac{y}{r} \\ &= \sin(\theta) \checkmark\end{aligned}$$

16) Verify: $\cot(\theta) = \frac{\csc(\theta)}{\sec(\theta)}$

$$\begin{aligned}\frac{\csc(\theta)}{\sec(\theta)} &= \frac{\frac{r}{y}}{\frac{r}{x}} \\ &= \frac{r}{y} \cdot \frac{x}{r} \\ &= \frac{x}{y} \\ &= \cot(\theta) \checkmark\end{aligned}$$

Pg Two
Fot