Trigonometry Unit #1re

Form #1

* If your item #1 references #5, you have Form #1.

I

1. B
2. C
3. FALSE
4. A
5. Free
6. D
7. D
8. D
9. D
10. A

II

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

$\alpha = \beta \Rightarrow 4x+30 = 6x-20$

$-4x \quad +20 \quad -4x \quad +20$

$\Rightarrow 50 = 2x$

$\Rightarrow 25 = x$

50

$\alpha = 4(25)+30$

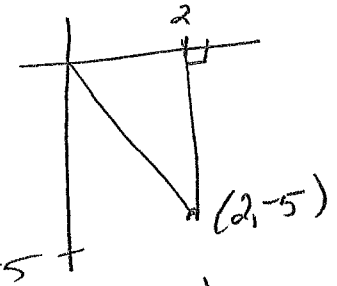
$= \boxed{130^\circ}$

$\beta = 6(25)-20$

$= \boxed{130^\circ}$

III

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



$\Rightarrow x = 2$ ✓

$y = -5$ ✓

$r = \sqrt{(2)^2+(-5)^2}$

$= \sqrt{4+25}$

$= \sqrt{29}$ ✓

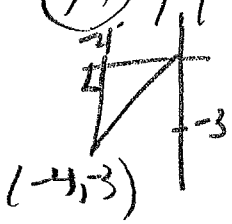
50

$\sin(\theta) = -\frac{5}{\sqrt{29}} \quad \csc(\theta) = -\frac{\sqrt{29}}{5}$

$\cos(\theta) = \frac{2}{\sqrt{29}} \quad \sec(\theta) = \frac{\sqrt{29}}{2}$

$\tan(\theta) = -\frac{5}{2} \quad \cot(\theta) = -\frac{2}{5}$

14. $P(-4,-3)$



$x = -4$ ✓

$y = -3$ ✓

$r = \sqrt{(-4)^2+(-3)^2}$

$= \sqrt{16+9}$

$= \sqrt{25} = 5$ ✓

50

$\sin(\theta) = -\frac{3}{5} \quad \csc(\theta) = -\frac{5}{3}$

$\cos(\theta) = -\frac{4}{5} \quad \sec(\theta) = -\frac{5}{4}$

$\tan(\theta) = \frac{-3}{-4} = \frac{3}{4} \quad \cot(\theta) = \frac{4}{3}$

PJ two

III

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

* start with the more complicated side:

$$\frac{1}{\csc(\theta)} = \frac{1}{\frac{r}{y}}$$

$$= 1 \cdot \frac{y}{r}$$

$$= \frac{y}{r}$$

$$= \sin(\theta) \leftarrow$$

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

$$\frac{\csc(\theta)}{\sec(\theta)} = \frac{\frac{r}{y}}{\frac{r}{x}}$$

$$= \frac{r}{y} \cdot \frac{x}{r}$$

$$= \frac{x}{y}$$

$$= \cot(\theta) \leftarrow$$