Test 1 Pre-Test ANSWERS

1. $-6 - 2\sqrt{6}$

2. $280°$

3. $m\angle A = 67°\ 41'\ 19''$

4. $m\angle C = 118°\ 01'\ 27''$

5. **a)** $m\angle PTR = 57°\ 27'\ 44''$ **b)** $m\angle PTM = 31°\ 45'\ 39''$

6. **a)** $r = 6$ **c)** $x^2 + y^2 = 36$ **6 b)** *graph:*

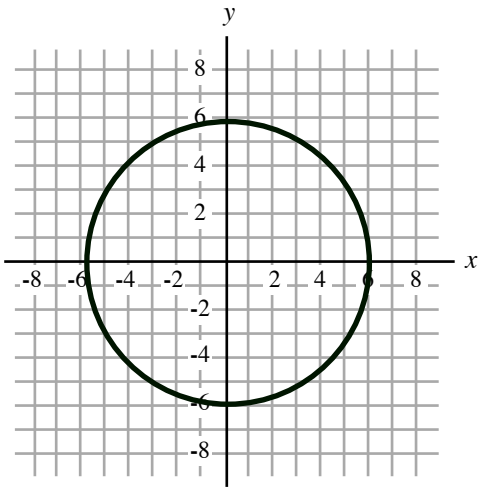
7.

$$\left(-\frac{5\sqrt{3}}{9}\right)^2 + \left(\frac{\sqrt{6}}{9}\right)^2 \stackrel{?}{=} 1$$

$$\frac{25\cdot 3}{81} + \frac{6}{81} \stackrel{?}{=} 1$$

$$\frac{75+6}{81} \stackrel{?}{=} 1$$

$$\frac{81}{81} = 1 \quad \text{Yes.}$$



8. $\sin\theta = -\frac{2}{3}$

9. $\theta = = 300°$

10. $m\text{Arc}_{AB} = \frac{8\pi}{3}$ inches

11. $x = 20$

12. $x = 9$

13.	a) $y = 2$ $h = 2\sqrt{3}$ $p = 2\sqrt{3}$ $m = 2\sqrt{6}$	b) $y = 3\sqrt{3}$ $x = 6\sqrt{3}$ $p = 9$ $m = 9\sqrt{2}$	c) $p = 6\sqrt{2}$ $h = 6\sqrt{2}$ $y = 2\sqrt{6}$ $x = 4\sqrt{6}$

14.	a) $h = 5\sqrt{3}$ $x = 10$ $p = 5\sqrt{2}$ $m = 5\sqrt{2}$	b) $y = 3\sqrt{3}$ $h = 9$ $p = 3\sqrt{6}$ $m = 3\sqrt{6}$	c) $y = 3\sqrt{6}$ $x = 6\sqrt{6}$ $p = 6\sqrt{3}$ $m = 6\sqrt{3}$

15. a) QII b) QIII c) QI d) QII

16. coterminal angle = 120° (graph not shown)

17. coterminal angle = 210° (graph not shown)

18. $\sin\theta = -\frac{\sqrt{7}}{4}$ $\cos\theta = \frac{3}{4}$ $\tan\theta = -\frac{\sqrt{7}}{3}$

$\cot\theta = -\frac{3\sqrt{7}}{7}$ $\sec\theta = \frac{4}{3}$ $\csc\theta = -\frac{4\sqrt{7}}{7}$

19. $\sin\theta = 1$ $\quad$ $\cos\theta = 0$ $\quad$ $\tan\theta$ is undefined

$\cot\theta = 0$ $\quad$ $\sec\theta$ is undefined $\quad$ $\csc\theta = 1$

20. $\sin\theta = -\frac{4}{5}$ $\quad$ $\tan\theta = -\frac{4}{3}$ $\quad$ $\sec\theta = \frac{5}{3}$

21. $\sin\theta = \frac{\sqrt{5}}{3}$ $\quad$ $\cos\theta = -\frac{2}{3}$ $\quad$ $\tan\theta = -\frac{\sqrt{5}}{2}$

22. $\sin 30° = \frac{1}{2}$	$\sin 60° = \frac{\sqrt{3}}{2}$	$\sin 45° = \frac{\sqrt{2}}{2}$
$\cos 30° = \frac{\sqrt{3}}{2}$	$\cos 60° = \frac{1}{2}$	$\cos 45° = \frac{\sqrt{2}}{2}$
$\tan 30° = \frac{\sqrt{3}}{3}$	$\tan 60° = \sqrt{3}$	$\tan 45° = 1$
$\cot 30° = \sqrt{3}$	$\cot 60° = \frac{\sqrt{3}}{3}$	$\cot 45° = 1$
$\sec 30° = \frac{2\sqrt{3}}{3}$	$\sec 60° = 2$	$\sec 45° = \sqrt{2}$
$\csc 30° = 2$	$\csc 60° = \frac{2\sqrt{3}}{3}$	$\csc 45° = \sqrt{2}$

23. 3 $\quad$ **24.** 1 $\quad$ **25.** $\sqrt{2}$ $\quad$ **26.** $\frac{1}{3}$ $\quad$ **27.** 2 $\quad$ **28.** $\frac{3}{2}$

29. $2\cos\theta$ $\quad$ **30.** $\cos\theta$

31.

$$\frac{\tan\theta}{\sin\theta\cos\theta} =$$

$$\frac{\frac{\sin\theta}{\cos\theta}}{\sin\theta\cos\theta} \cdot \frac{\frac{\cos\theta}{1}}{\cos\theta}, =$$

$$\frac{\sin\theta}{\sin\theta\cos^2\theta} =$$

$$\frac{1}{\cos^2\theta} =$$

$$\sec^2\theta = \sec^2\theta \quad QED$$

32.

$$\csc\theta\tan\theta - \cos\theta =$$

$$\frac{1}{\sin\theta} \cdot \frac{\sin\theta}{\cos\theta}, - \cos\theta =$$

$$\frac{1}{\cos\theta} - \cos\theta \cdot \frac{\cos\theta}{\cos\theta}, =$$

$$\frac{1 - \cos^2\theta}{\cos\theta} =$$

$$\frac{\sin^2\theta}{\cos\theta} = \frac{\sin^2\theta}{\cos\theta} \quad QED$$