Practice Problems 1

Draw the angle and tell in what quadrant the terminal side lies.

1. −60°

2. −135°

3. 420°

4. 560°

5. 210°

6. −250°

7. −315°

8. −330°
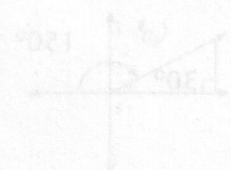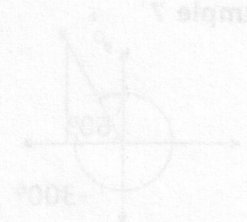
The reference angle makes it possible to have a sin, cos, or tan and thus a ratio. The quadrant in which the terminal side of the angle ends up determines whether the ratio will be positive or negative. Technically, the angles 90°, 180°, 270°, and 360° (or 0°) lie on the x- and y-axes and not in a specific quadrant, but I am going to assign them to quadrants to keep it simple. We will consider 90° to be in the first quadrant, 180° in the second, 270° in the third, and 360° in the fourth.

Practice Problems 2

For each angle, name the quadrant in which it lies and the reference angle to be used.

1. −30°

2. 820°

3. −240°

4. 720°

5. 630°

6. −98°

7. 443°

8. −320°

9. 542°

10. −190°

11. −400°

12. 618°

Practice Problems 3

1. Find the six trigonometric ratios of an angle with the given point (5, -12) on the terminal side. Draw a diagram.

2. Find the six trigonometric ratios of an angle with the given point (-15, -8) on the terminal side. Draw a diagram.
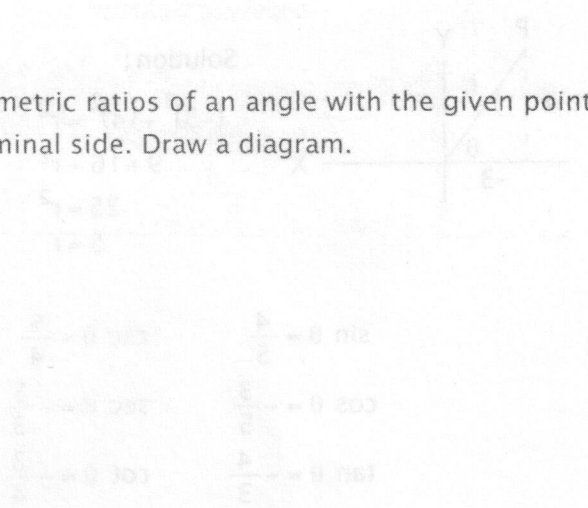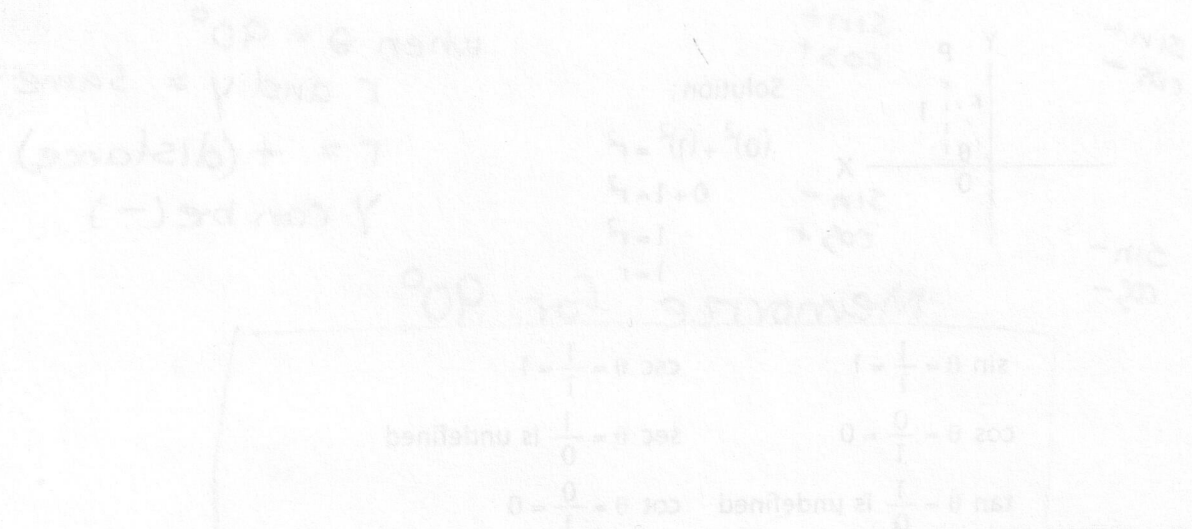
Practice Problems 4

Sketch the angle, find the reference angle, and note in which quadrant it lies. Then fill in the table. Some values are undefined because the denominator of the ratio is zero. Use your knowledge of special triangles to write the ratios as fractions. Numbers 3 and 6 are worked out as examples.

	hypotenuse	θ	quadrant	$\sin\theta$	$\cos\theta$	$\tan\theta$	$\csc\theta$	$\sec\theta$	$\cot\theta$
1.	8	30°	I						
2.	$8\sqrt{2}$	45°	I						
3.	8	60°	I	$\dfrac{\sqrt{3}}{2}$	$\dfrac{1}{2}$	$\sqrt{3}$	$\dfrac{2\sqrt{3}}{3}$	2	$\dfrac{\sqrt{3}}{3}$
4.	4	90°	I						
5.	4	120°	II						
6.	$4\sqrt{2}$	135°	II	$\dfrac{\sqrt{2}}{2}$	$\dfrac{-\sqrt{2}}{2}$	-1	$\sqrt{2}$	$-\sqrt{2}$	-1
7.	4	150°	II						
8.	7	180°	II						