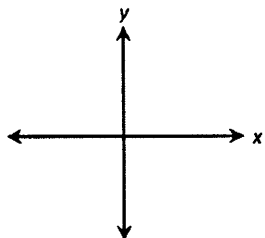


**Pre-Calculus 11**  
**Unit 2 - Trigonometry**  
**Extra Practice**

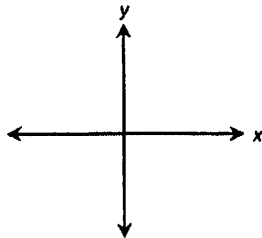
A. Sketch each of the following angles in standard position and find the reference angle for each.

1.  $\theta = 40^\circ$



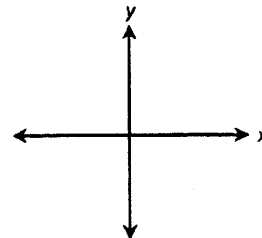
reference angle =

2.  $\theta = 140^\circ$



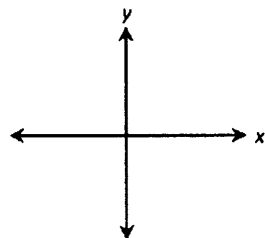
reference angle =

3.  $\theta = 220^\circ$



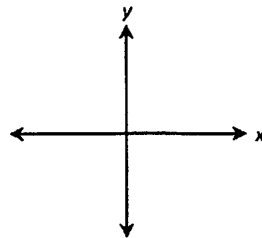
reference angle =

4.  $\theta = 300^\circ$



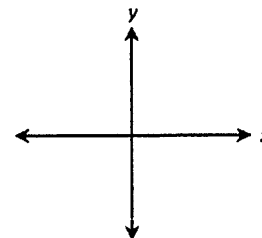
reference angle =

5.  $\theta = 390^\circ$



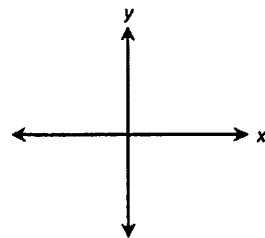
reference angle =

6.  $\theta = 820^\circ$



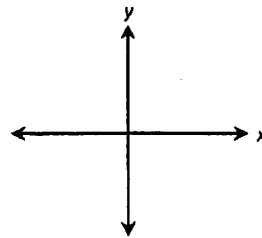
reference angle =

7.  $\theta = -40^\circ$



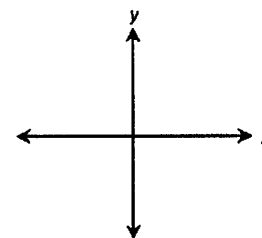
reference angle =

8.  $\theta = -280^\circ$



reference angle =

9.  $\theta = -750^\circ$



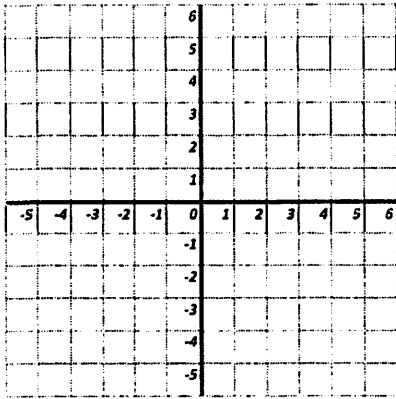
reference angle =

B. Determine the QUADRANT (I, II, III, IV) in which the terminal arm of  $\theta$  lies and the possible values of  $\theta$ , if:

- |   |   |    |     |    |                          |                            |
|---|---|----|-----|----|--------------------------|----------------------------|
| 1. $\cos\theta > 0$ and $\sin\theta > 0$          | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 2. $\sin\theta < 0$ and $\tan\theta > 0$          | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 3. $\tan\theta < 0$ and $\cos\theta < 0$          | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 4. $\cos\theta < 0$ and $\sin\theta < 0$          | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 5. $\sin\theta > 0$ and $\tan\theta < 0$          | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 6. $\sin\theta > 0$ and $\cos\theta < 0$          | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 7. $\tan\theta = 0.568$ and $\cos\theta = -0.289$ | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 8. $\sin\theta = -0.873$ and $\cos\theta = 0.927$ | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 9. $\cos\theta = 0.197$ and $\tan\theta = -3.8$   | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 10. $\cos\theta = 0.519$ and $\tan\theta = 4$     | I | II | III | IV | <input type="checkbox"/> | ___ $\leq \theta \leq$ ___ |
| 11. $\sin\theta > 0$                              | I | II | III | IV | $\theta:$                |                            |
| 12. $\cos\theta < 0$                              | I | II | III | IV | $\theta:$                |                            |
| 13. $\tan\theta < 0$                              | I | II | III | IV | $\theta:$                |                            |
| 14. $\cos\theta = 0.587$                          | I | II | III | IV | $\theta:$                |                            |
| 15. $\sin\theta = -0.98$                          | I | II | III | IV | $\theta:$                |                            |
| 16. $\tan\theta = 3.6$                            | I | II | III | IV | $\theta:$                |                            |

C. The given point  $P$  is on the terminal arm of an angle  $\theta$  in standard position. Sketch the angle and find exact values of  $\sin \theta$ ,  $\cos \theta$ , and  $\tan \theta$ .

1.  $P(4, 3)$



$x =$              $y =$

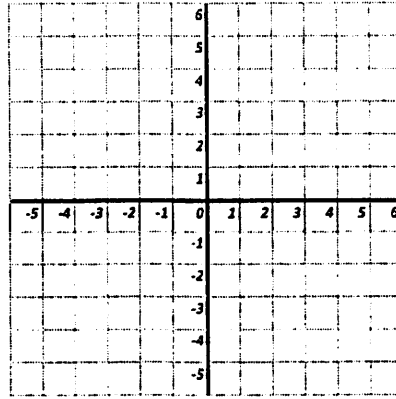
$r =$

$\sin \theta =$

$\cos \theta =$

$\tan \theta =$

2.  $P(-3, 5)$



$x =$              $y =$

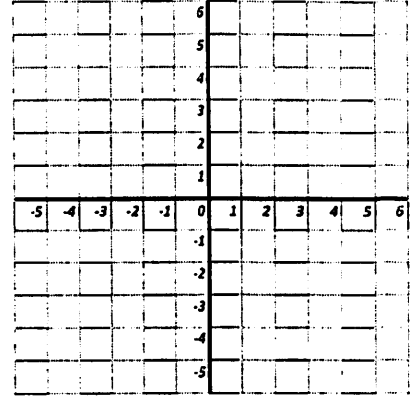
$r =$

$\sin \theta =$

$\cos \theta =$

$\tan \theta =$

3.  $P(-1, -6)$



$x =$              $y =$

$r =$

$\sin \theta =$

$\cos \theta =$

$\tan \theta =$

Given the coordinates of a point  $P$  on the terminal arm, find  $\sin \theta$ ,  $\cos \theta$ , and  $\tan \theta$ , without sketching the angle.

4.  $P(-7, 9)$

5.  $P(-11, -13)$


6.  $P(5, -13)$

5. If  $\sin\theta = -\frac{4}{5}$ , find the coordinates of a point **P** on the terminal arm of  $\theta$ . Also, find  $\cos\theta$ , and  $\tan\theta$ .

6. If  $\cos\theta = -\frac{7}{13}$ , find the coordinates of a point **P** on the terminal arm of  $\theta$ . Also, find  $\sin\theta$ , and  $\tan\theta$ .

7. If  $\tan\theta = -\frac{9}{4}$ , find the coordinates of a point **P** on the terminal arm of  $\theta$ . Also, find  $\sin\theta$ , and  $\cos\theta$ .

D. Without using a calculator, determine the EXACT VALUES of the following trigonometric values.



1.  $\sin 45^\circ$

2.  $\cos 45^\circ$

3.  $\tan 45^\circ$

4.  $\sin 30^\circ$

5.  $\cos 30^\circ$

6.  $\tan 30^\circ$

7.  $\sin 60^\circ$


8.  $\cos 60^\circ$

9.  $\tan 60^\circ$

10.  $\sin 120^\circ$

11.  $\cos 315^\circ$

12.  $\tan 240^\circ$



13.  $\sin 330^\circ$


14.  $\cos 150^\circ$

15.  $\tan 300^\circ$

16.  $\sin 225^\circ$

17.  $\cos 240^\circ$

18.  $\tan 135^\circ$



E. Without using a calculator, solve the following trigonometric equations to find the EXACT VALUE(S) of  $\theta$ .

1. Solve:  $2\sin\theta = 1; 0 < \theta < 360$

2. Solve:  $2\cos\theta = \sqrt{3}; 0 < \theta < 360$

3. Solve:  $\sqrt{3}\tan\theta = 1; 0 < \theta < 360$

4. Solve:  $2\sin\theta = -\sqrt{3}; 0 < \theta < 360$

5. Solve:  $-2\cos\theta = 1; 0 < \theta < 360$

6. Solve:  $-\tan\theta = \sqrt{3}; 0 < \theta < 180$

7. Solve:  $-2\sin\theta = 1; \theta$  is in quadrant IV

8. Solve:  $\cos\theta = -\frac{\sqrt{3}}{2}; 270 < \theta < 360$