If each angle is in standard position, determine a coterminal angle that is between $0^{\circ}$ and $360^{\circ}$.
State the quadrant in which the terminal side lies.

1. $1146^{\circ}$
2. $1072^{\circ}$
3. $-832^{\circ}$
4. Find the measure of the reference angle for $592^{\circ}$. Show work
5. Find the exact values of the six trigonometric functions for M. Show work.

6. Evaluate $\csc \left(\cot ^{-1} 4 / 3\right)$. Find the exact value by sketching a triangle in Quadrant I.
7. If $\sec \theta=7 / 5$, find $\sin \theta$. Find the exact value by sketching a triangle in Quadrant I.

Find the exact value by drawing a diagram for each angle. Show where the terminal side lands, label coordinates or use special triangle ratios by drawing a height to the x -axis and labeling $\mathrm{x}, \mathrm{y}, \mathrm{r}$.
8. $\tan 60^{\circ}$
9. $\sec 270^{\circ}$
10. $\sin \left(-405^{\circ}\right)$

| \#1-13 CHECK |  |  |  |
| :---: | :---: | :---: | :---: |
| ANSWERS |  |  |  |
| undefined | I |  |  |
| undefined | III |  |  |
| undefined | IV |  |  |
| -1 | -1 | 0 | 0 |
| 52 | 66 | 248 | 352 |
| $\frac{1}{3}$ | $\frac{2}{3}$ | $\frac{3}{2}$ |  |
| $\frac{5}{3}$ | $\frac{5}{13}$ | $\frac{13}{5}$ |  |
| $\frac{\sqrt{3}}{}$ | $\frac{2 \sqrt{6}}{7}$ | $\frac{2 \sqrt{13}}{13}$ |  |
| $\frac{3 \sqrt{13}}{13}$ | $\frac{\sqrt{13}}{2}$ | $\frac{\sqrt{13}}{3}$ |  |
| $-\frac{\sqrt{2}}{2}$ | $-\frac{\sqrt{10}}{10}$ |  |  |
| $-\frac{\sqrt{10}}{3}$ | $-\sqrt{10}$ |  |  |
| $-\frac{3 \sqrt{10}}{10}$ | $-\frac{5}{12}$ |  |  |
| $-\frac{12}{5}$ | $-\frac{12}{13}$ | $-\frac{13}{12}$ |  |

Find the exact values of the six trig functions for each angle $\theta$ in standard position if a point with the given coordinates lies on its terminal side. Draw a diagram and show work using $\mathrm{x}, \mathrm{y}$, and r .

$$
\text { 11. }(5,-12)
$$

12. $(-2,0)$
13. Suppose $\theta$ is an angle in standard position whose terminal side lies in the given quadrant. Find the exact values of the remaining five trig functions for $\tan \boldsymbol{\theta}=\mathbf{3}$; Quadrant lll. Draw a diagram \& show work.
14. Solve the right triangle: $B=49^{\circ}, a=16$
(reminder: "solve triangle" = find all sides/angles)
15. Solve the right triangle: $A=64^{\circ}, \mathrm{c}=28$
16. Solve the triangle using Law of Cosines and/or Law of Sines. $\mathrm{c}=8, \mathrm{C}=49^{\circ}, \mathrm{B}=57^{\circ}$ Draw a diagram.
17. Solve for $b$ using the Law of Cosines.

$$
\mathrm{B}=19^{\circ}, \quad \mathrm{a}=51, \quad \mathrm{c}=61
$$

19. In a triangle, $\mathrm{b}=7, \mathrm{a}=9$, and $\mathrm{c}=12$. Solve for A .

Draw a diagram. Be sure to use proper order of operations.

Find the area of each triangle for \#20-21. Draw a diagram. HINT: A =1/2(side1)(side2)(sin included angle)
20. $\mathrm{B}=22.6^{\circ}, \mathrm{a}=18.4, \mathrm{c}=6.7$
21. $\mathrm{b}=24, \mathrm{~A}=56^{\circ}, \mathrm{B}=78^{\circ}$
22. A kite is fastened to the ground by a string that is 65 meters long. If the angle of elevation of the kite is $70^{\circ}$, how far is the kite above the ground? Draw a diagram.
23. Hugo is taking a boat tour of a lake. The route he takes is shown below.

\#14-23 CHECK ANSWERS
$\begin{array}{lll}5.0 & 8.9 & 10.2\end{array}$
$\begin{array}{lll}12.3 & 18.4 & 21.0\end{array}$
$\begin{array}{llll}23.7 & 24.4 & 25.2\end{array}$
$\begin{array}{llll}26 & 28.5 & 30.7\end{array}$
$41 \quad 48.261 .1$
$74 \quad 175.6$
a. How far is it from the lighthouse to the marina?
b. What is the angle between the route from the dock to the marina and the route from the marina to the lighthouse?

