Evaluate the six trigonometric functions of the angle $\theta$.

1. $\theta$ \[ \begin{array}{c}
9 \\
15 \\
\theta
\end{array} \]

2. $\theta$ \[ \begin{array}{c}
6 \\
2\sqrt{13} \\
\end{array} \]

Let $\theta$ be an acute angle of a right triangle. Find the values of the other five trigonometric functions of $\theta$.

3. $\sin \theta = \frac{4}{5}$

4. $\cos \theta = \frac{5}{6}$

5. $\sec \theta = \frac{\sqrt{73}}{8}$

6. $\cot \theta = \sqrt{3}$

Find the exact values of $x$ and $y$.

7. $x \quad y$ \[ \begin{array}{c}
13 \\
45
\end{array} \]

8. $y \quad x$ \[ \begin{array}{c}
4 \\
60
\end{array} \]

9. $x \quad y$ \[ \begin{array}{c}
10.5 \\
30 \\
2\sqrt{3}
\end{array} \]

Solve $\triangle DEF$ using the diagram and the given measurements.

10. $D = 40^\circ, f = 8$

11. $E = 53^\circ, d = 13$

12. $D = 67^\circ, e = 10.5$

13. Shadow A person casts the shadow shown.

What is the approximate height of the person?

14. Mountains A hiker at the top of a mountain sees a farm and an airport in the distance.

a. What is the distance $d$ from the hiker to the farm?

b. What is the distance $y$ from the farm to the airport?