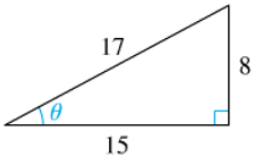
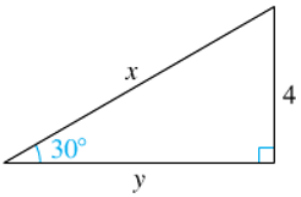
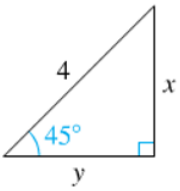
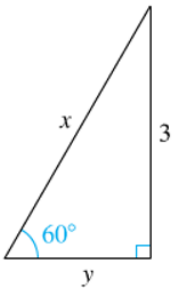
1. Find values of the six trigonometric functions of angle θ.

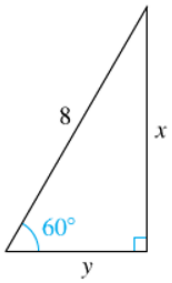


2. Find the exact values of x and y.









3. Give the exact value.

a) $\tan 30°$ b) $\sin 30°$ c) $\sec 30°$

d) $\csc 60°$ e) $\cot 60°$ f) $\cos 60°$

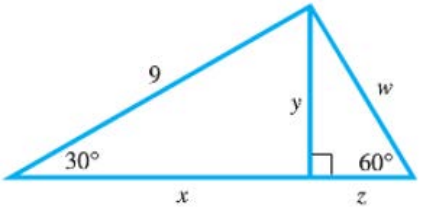
g) $\tan 45°$ h) $\sin 45°$ i) $\sec 45°$

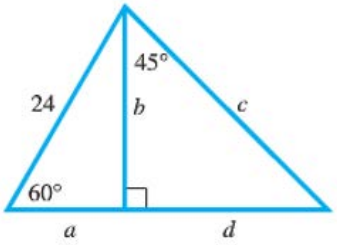
Concept Check:

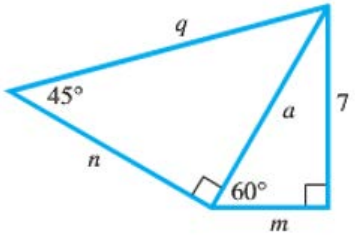
4. Find an equation of the line that passes through the origin and makes a 30° angle with the *x*-axis.

5. What angle does the line $y = \sqrt{3}\,x$ make with the positive *x*-axis?

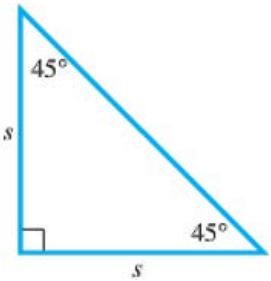
6. Find the exact value of each unknown.

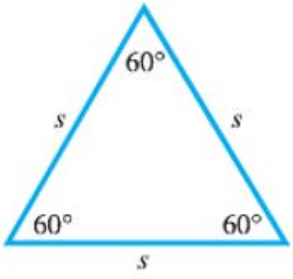






7. Find a formula for the area of the figure in terms of s.





8. Sketch a triangle that has acute angle θ, and find the other five trigonometric ratios of θ.

a) $\sin\theta = \frac{3}{5}$ b) $\cot\theta = 1$ c) $\tan\theta = \sqrt{3}$

d) $\sec\theta = \frac{7}{2}$ e) $\csc\theta = \frac{13}{12}$ f) $\cos\theta = \frac{1}{5}$

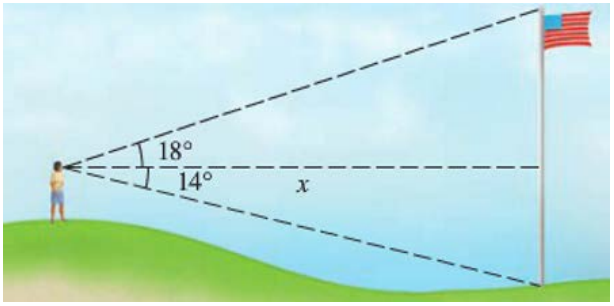
9. Using the given information, find the exact value of θ.

   a) $\sin\theta = \frac{1}{2}$ b) $\cos\theta = \frac{\sqrt{3}}{2}$ c) $\tan\theta = \frac{\sqrt{3}}{3}$

10. A 600-ft wire is attached to the top of a communication tower. If the wire makes an angle of $65°$ with the ground, how tall is the communications tower?

11. A man is lying on the beach, flying a kite. He holds the end of the kite string at ground level, and estimates the angle of elevation of the kite to be $50°$. If the string is 450 ft long, how high is the kite above the ground?

12. A woman standing on a hill sees a flagpole that she knows is 60 ft tall. The angle of depression to the bottom of the pole is $14°$, and the angle of elevation to the top of the pole is $18°$. Find her distance x from the pole.



13. Find the area of a triangle with sides of length 10 and 22, and enclosed angle $10°$.

14. Find the area of an equilateral triangle with side of length 10 cm.

15. A triangle with area of 16 in^2 has two sides of length 5 in. and 7 in. Find the angle enclosed by these two sides.