

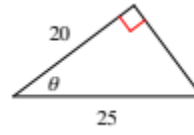
**I. Trig Ratios**

Write each trig ratio for  $\theta$  in simplest form.

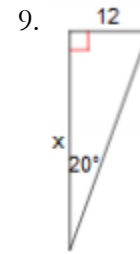
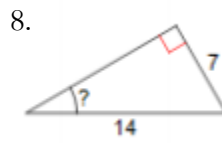
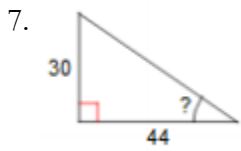
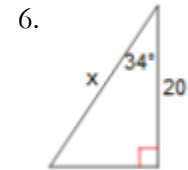
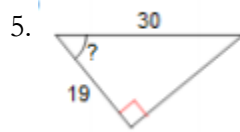
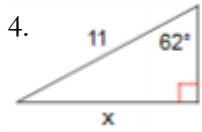
1.  $\sin(\theta) =$

2.  $\cos(\theta) =$

3.  $\tan(\theta) =$

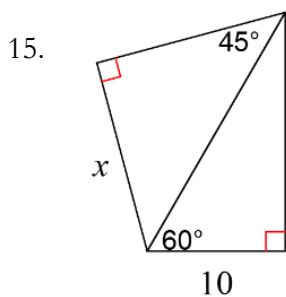
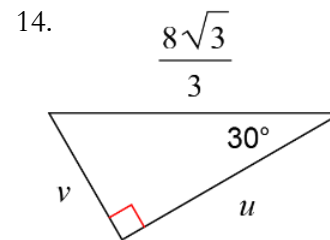
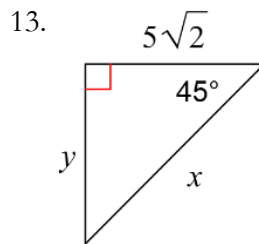
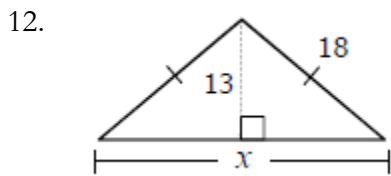
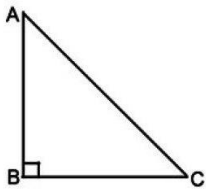


**II. Solve for the missing variables or the ? using Trigonometry. Round to the nearest tenth.**



10. For the triangle below, if  $\cos C = \frac{15}{17}$ , what is  $\cos A$ ?

11.  $4 \cos x - 1 = 2$



### III. Application Problems. Round to the nearest tenth.

16. The radar from a ship on the surface of the water detects a submarine 238 feet away at an angle of depression of  $23^\circ$ . How deep underwater is the submarine?
  
  
  
  
  
  
  
  
  
  
17. A radio station tower was built in two sections. From a point 87 feet from the base of the tower, the angle of elevation to the top of the first section is  $25^\circ$  and the angle of elevation to the top of the second section is  $40^\circ$ . To the nearest tenth of a foot, what is the height of the top section of the tower?
  
  
  
  
  
  
  
  
  
  
18. A tower, 28.4 feet high, must be secured with a guy wire anchored 5 feet from the base of the tower. What angle will the guy wire make with the ground?
  
  
  
  
  
  
  
  
  
  
19. An airplane takes off 200 yards in front of a 60-foot-tall building. To the nearest tenth, at what angle of elevation must the plane take off in order to avoid crashing into the building?
  
  
  
  
  
  
  
  
  
  
20. A person stands at the window of a building so that his eyes are 12.6 meters above the level ground. An object is on the ground 58.5 meters away from the base of the building. Compute the angle of depression of the person's line of sight to the object on the ground. Round to the nearest tenth.
  
  
  
  
  
  
  
  
  
  
21. An Olympic-size swimming pool is approximately 50 meters long by 25 meters wide. What distance will a swimmer travel if they swim from one corner to the opposite corner?