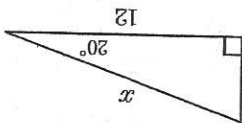


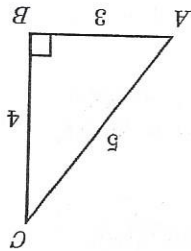
Name: _____

1. Which equation can be used to find the value of x in the right triangle shown?



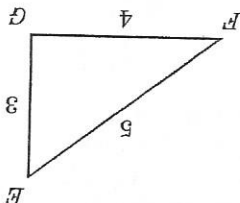
- A. $\cos 20^\circ = \frac{12}{x}$
- B. $\sin 20^\circ = \frac{12}{x}$
- C. $\cos 20^\circ = \frac{x}{12}$
- D. $\cos 70^\circ = \frac{12}{x}$

2. In the accompanying diagram, the legs of right triangle ABC are 4 and 3, and the hypotenuse is 5. What is the value of $\tan A$?



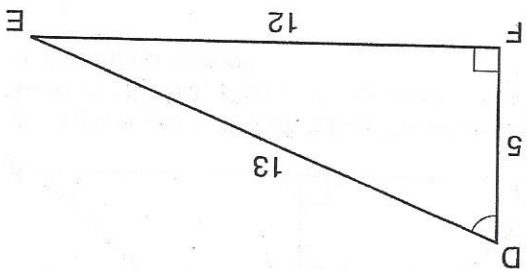
- A. $\frac{3}{4}$
- B. $\frac{5}{3}$
- C. $\frac{3}{4}$
- D. $\frac{4}{3}$

3. In the accompanying diagram, what is $\sin E$?



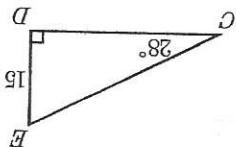
- A. $\frac{4}{3}$
- B. $\frac{3}{4}$
- C. $\frac{3}{5}$
- D. $\frac{4}{5}$

4. Which equation could be used to find the measure of angle D in the right triangle shown in the diagram below?



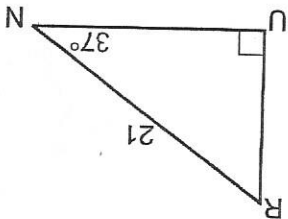
- A. $\cos D = \frac{13}{12}$
- B. $\cos D = \frac{12}{13}$
- C. $\sin D = \frac{13}{5}$
- D. $\sin D = \frac{12}{13}$

5. In the accompanying diagram of $\triangle CDE$, $m\angle D = 90^\circ$, $m\angle C = 28^\circ$, and $ED = 15$. Which equation can be used to find CD ?



- A. $\sin 28^\circ = \frac{CD}{15}$
- B. $\sin 28^\circ = \frac{CD}{15}$
- C. $\tan 28^\circ = \frac{CD}{15}$
- D. $\tan 28^\circ = \frac{15}{CD}$

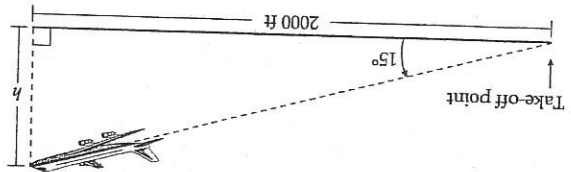
6. In the accompanying diagram of right triangle RUN , $m\angle U = 90^\circ$, $m\angle N = 37^\circ$, and $RN = 21$.



What is the length of RU , expressed to the nearest tenth?

- A. 12.6
- B. 15.8
- C. 16.8
- D. 34.9

13. An airplane makes a 15° angle of elevation from the runway when it takes off. The airplane pictured below is 2,000 feet along the ground from its take-off point.

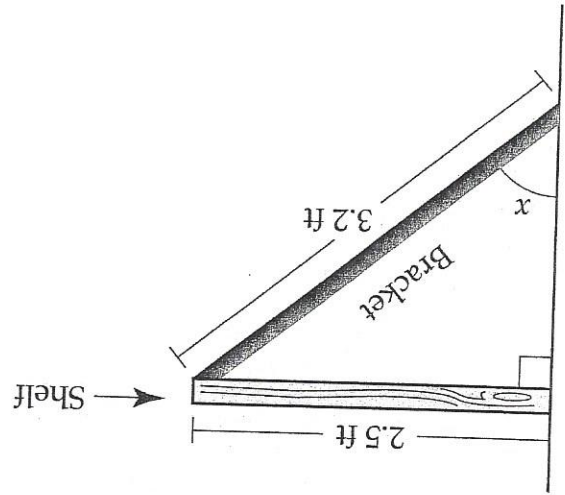


Note: The figure is not drawn to scale.

At what height (h) is the airplane? Round the answer to the nearest foot.

- A. 500 feet
- B. 518 feet
- C. 536 feet
- D. 550 feet

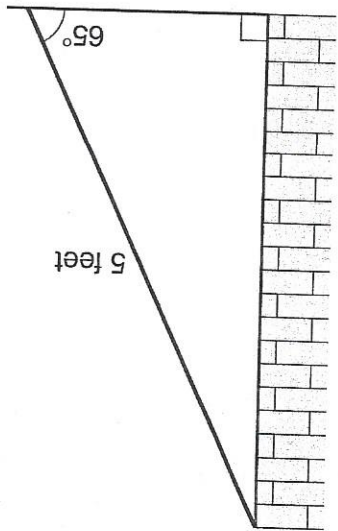
14. A shelf and bracket are shown below. The shelf is perpendicular to the wall.



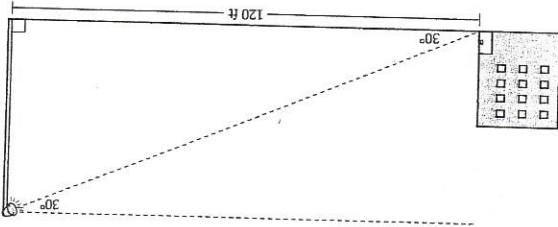
Note: The figure is not drawn to scale.

What angle (x), in degrees, does the bracket make with the wall?

15. As shown in the diagram below, a ladder 5 feet long leans against a wall and makes an angle of 65° with the ground. Find, to the nearest tenth of a foot, the distance from the wall to the base of the ladder.



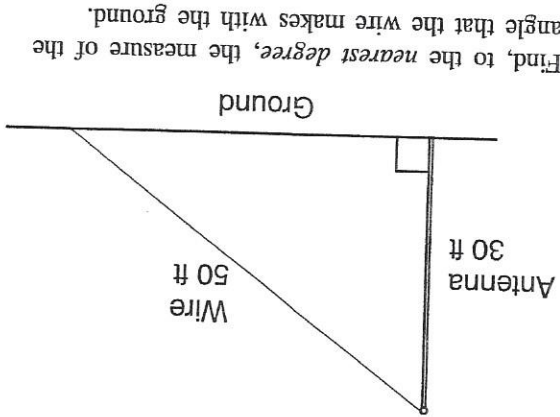
16. A lamp points toward the base of a doorway as shown below.



Note: The figure is not drawn to scale.

What is the height, in feet, of the lamp?

17. A communications company is building a 30-foot antenna to carry cell phone transmissions. As shown in the diagram below, a 50-foot wire from the top of the antenna to the ground is used to stabilize the antenna.



Find, to the nearest degree, the measure of the angle that the wire makes with the ground.