Name __Unit 9 Part 1 Retake Review__ Date _____

Do the circled Problems

Evaluate the six trigonometric functions of the angle θ.

1.

9, 15, θ

2.

θ, 6, $2\sqrt{13}$
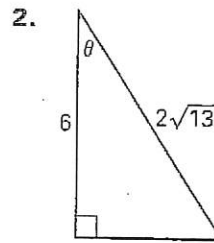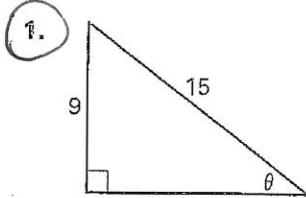
Let θ be an acute angle of a right triangle. Find the values of the other five trigonometric functions of θ.
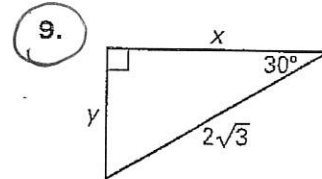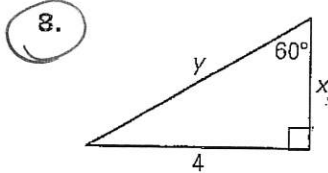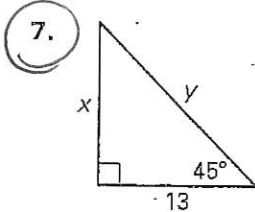
3. $\sin \theta = \dfrac{4}{5}$
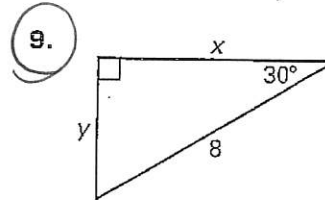
4. $\cos \theta = \dfrac{5}{6}$

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

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

Find the exact values of x and y.

7.

x, y, 45°, 13

8.

y, 60°, x, 4

9.

x, 30°, y, $2\sqrt{3}$

Find the exact values of x and y.

7.

x, y, 45°, 5

8.

y, 60°, x, $3\sqrt{3}$

9.

x, 30°, y, 8
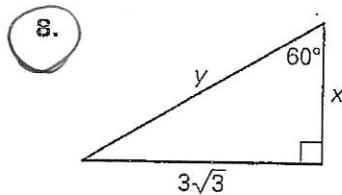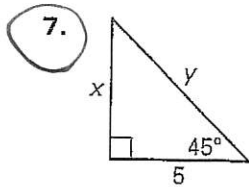
Solve △DEF using the diagram and the given measurements.

10. $D = 40°, f = 8$

11. $E = 53°, d = 13$

12. $D = 67°, e = 10.5$

D, e, f, F, d, E
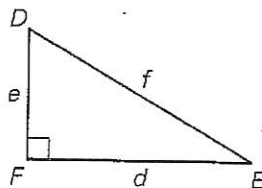
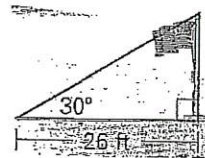**Solve △ABC using the diagram and the given measurements.**

10. $B = 35°, c = 10$
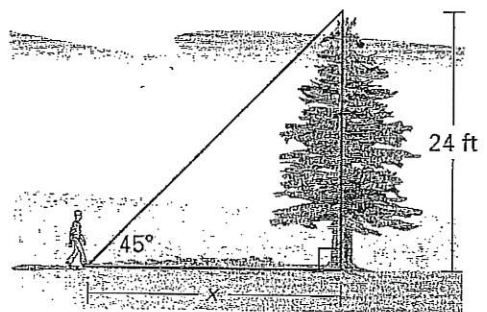
11. $B = 48°, a = 8$

12. $A = 52°, b = 7$
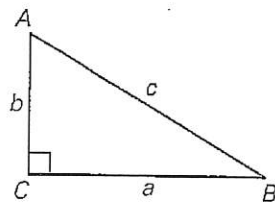
13. **Shadow** A flagpole projects a shadow on the ground that is 26 feet long. The angle of elevation is 30°. What is the approximate height of the flagpole?

14. **Trees** A hiker stands x feet from the base of a 24 foot tall tree. The angle of elevation to the top of the tree is 45°. How far is the hiker from the base?
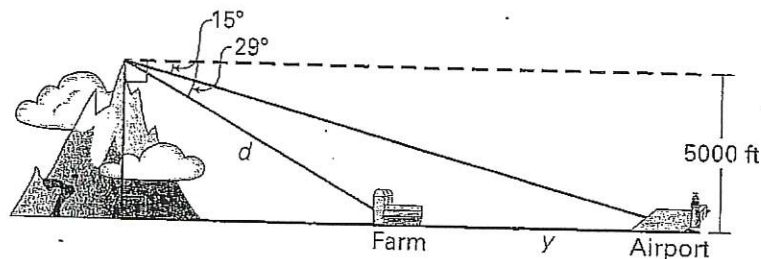

13. **Shadow** A person casts the shadow shown. What is the approximate height of the person?
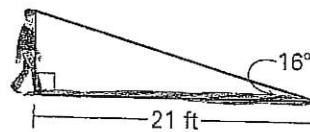
14. **Mountains** A hiker at the top of a mountain sees a farm and an airport in the distance.
  a. What is the distance d from the hiker to the farm?
  b. What is the distance y from the farm to the airport?

Not drawn to scale

Convert the degree measure to radians or the radian measure to degrees.

8. $270°$ **9.** $-135°$ **10.** $\dfrac{11\pi}{6}$ **11.** $-\dfrac{\pi}{18}$

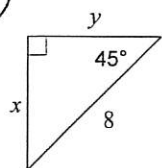Find the arc length and area of a sector with the given radius *r* and central angle θ.

12. $r = 5\text{ m},\ \theta = \dfrac{\pi}{2}$ **13.** $r = 7\text{ in.},\ \theta = \dfrac{3\pi}{4}$ **14.** $r = 11\text{ ft},\ \theta = 200°$
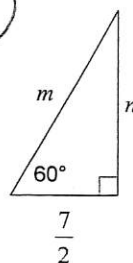
Find the missing side lengths. Leave your answers as radicals in simplest form.
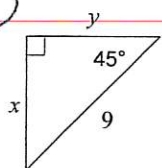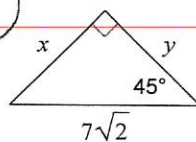
1)
y
$45°$
x
8

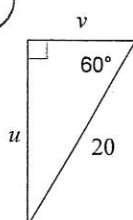2)
m
n
$60°$
$\dfrac{7}{2}$

3)
y
$45°$
x
9

4)
x
y
$45°$
$7\sqrt{2}$

5)
x
$60°$
5
y

6)
v
$60°$
u
20

9)
y
$3\sqrt{5}$
$30°$
x

7)
x
9
$60°$
y

8)
a
$4\sqrt{3}$
$60°$
b

10)
x
$30°$
y
6
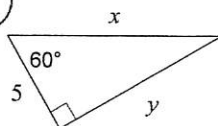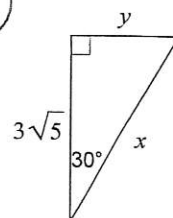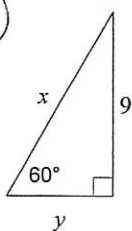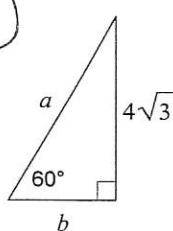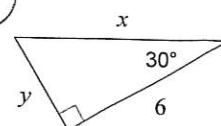
Use the given point on the terminal side of an angle θ in standard position to evaluate the six trigonometric functions of θ. Find the reference angle
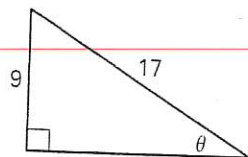
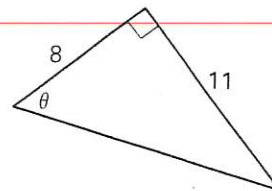**1.** $(-15, -8)$ **2.** $(1, -1)$ **3.** $(1, \sqrt{3})$ **4.** $(-3, 4)$

Find the measure of the angle θ.

17.

18.

19.