

# Geometry

## Right Triangle Study Guide

Name \_\_\_\_\_

For 1 & 2, determine if the 3 side lengths form a triangle. If so, classify the triangle as obtuse, right, or acute.

1) with sides 5, 7, and 8

2) with sides 4, 5, and  $\sqrt{41}$

acute

right

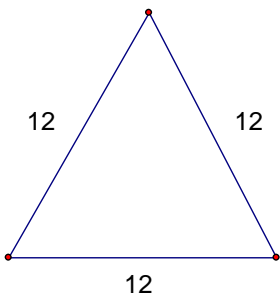
3) A 25 foot ladder just reaches a point on a wall 24 feet above the ground. How far is the foot of the ladder from the wall?

4) What is the sum of the lengths of the diagonals of a 3-by-4 rectangle?

7 ft

10

5) Find the altitude of the triangle below.



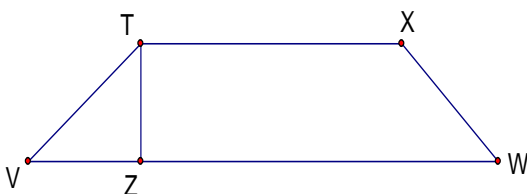
$6\sqrt{3}$

6) Find the perimeter of a square with diagonal of length 4.

7) Given: TVWX is an Isosceles Trapezoid  
 $TX = 8$ ,  $VW = 12$ ,  $\angle V = 30^\circ$

$16\sqrt{2}$

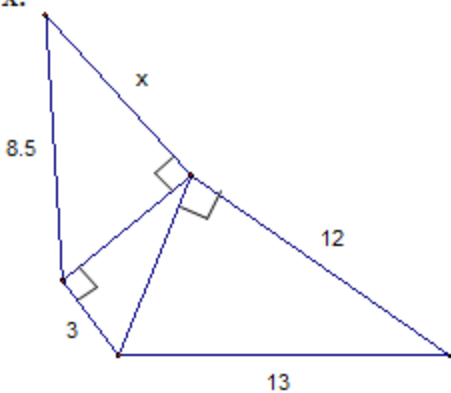
Find: TV and TZ



$$TZ = \frac{2\sqrt{3}}{3}$$

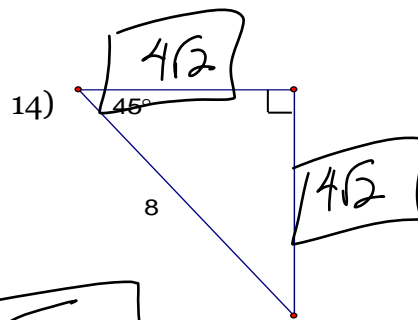
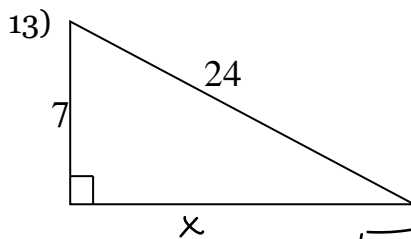
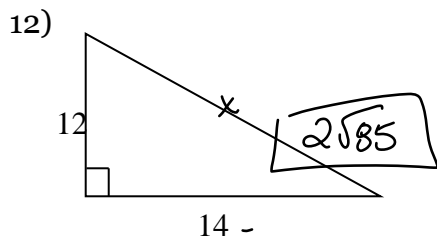
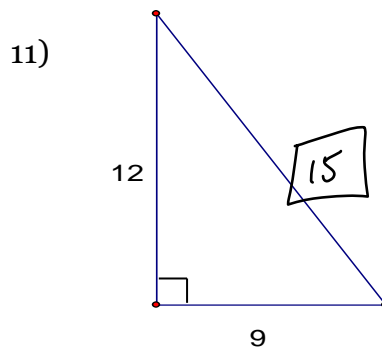
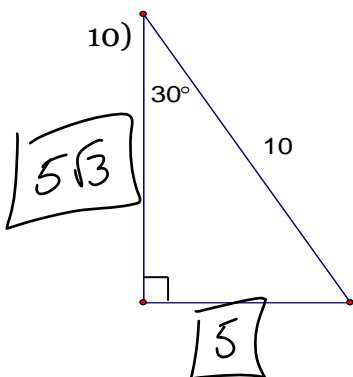
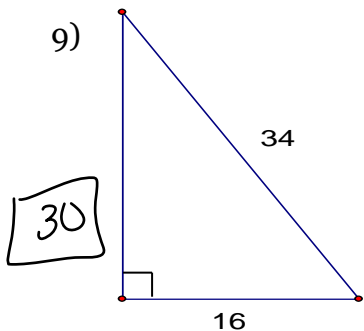
$$TV = \frac{4\sqrt{3}}{3}$$

8) Find x.

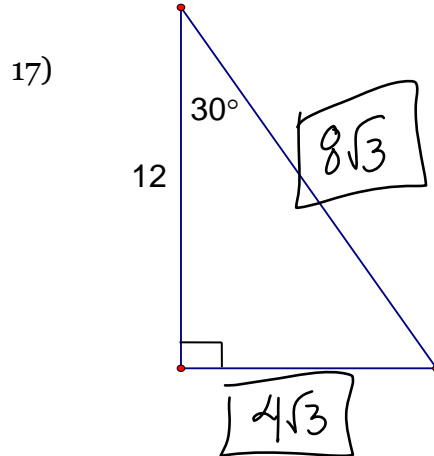
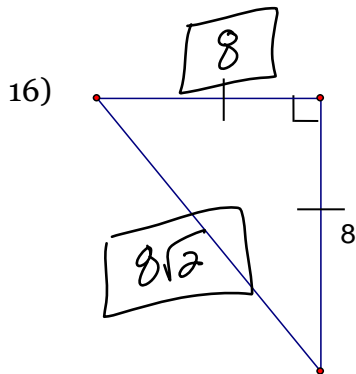
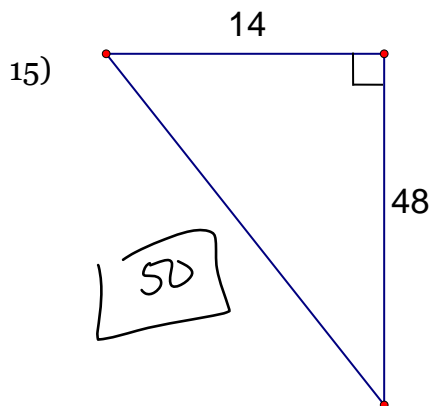


$$x = 7.5$$

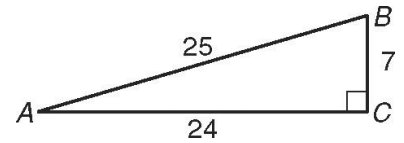
Find the missing lengths of the following triangles for problems 9-17. You will need to use a combination of the Pythagorean Triples,  $45 - 45 - 90$ ,  $30 - 60 - 90$ , and the Pythagorean Theorem if none of those work. A calculator is not needed for most problems. You will be required to show all work.



$$x = \sqrt{527}$$



Use the figure for Exercises 18–23. Write each trigonometric ratio as a simplified fraction and as a decimal rounded to the nearest hundredth.



18)  $\sin A = \frac{7}{25}$

19)  $\cos B = \frac{7}{25}$

20)  $\tan B = \frac{24}{7}$

21)  $\sin B = \frac{24}{25}$

22)  $\cos A = \frac{24}{25}$

23)  $\tan A = \frac{7}{24}$

Use a calculator to find each trigonometric ratio. Round to the nearest hundredth.

24)  $\sin 64^\circ = 0.90$

25)  $\cos 58^\circ = 0.53$

26)  $\tan 15^\circ = 0.27$

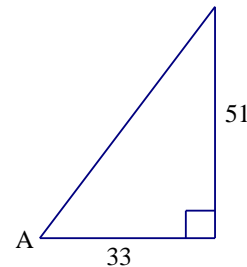
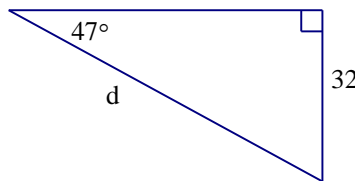
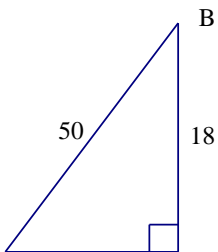
*Round to nearest hundredth*

For #27-32, solve each problem for the specified missing angle or side. Show all work.

27) Find  $\angle B = 60.90^\circ$

28) Find  $d = 43.75$

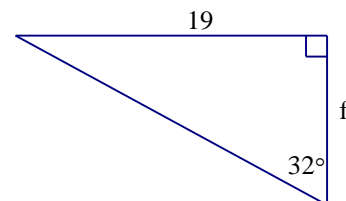
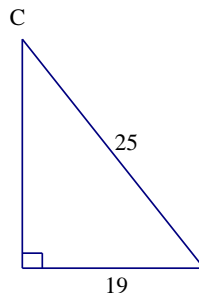
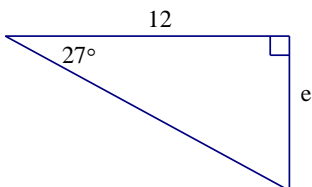
29) Find  $\angle A = 57.09^\circ$



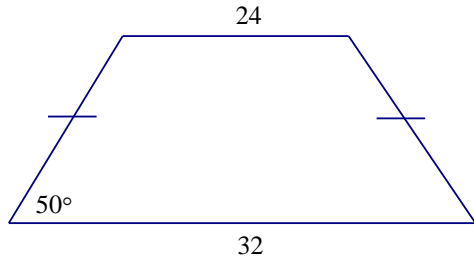
30) Find  $e = 6.11$

31) Find  $\angle C = 49.46^\circ$

32) Find  $f = 30.41$

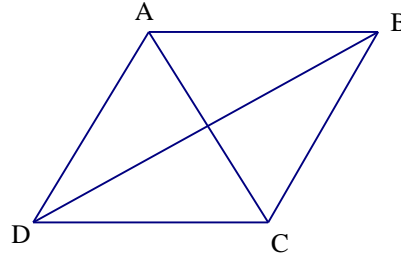


33) Find the height of the isosceles trapezoid with the given measures.



$$x \approx 4.77$$

34) ABCD is a rhombus with a perimeter of 40 and  $m\angle ABC = 48^\circ$ . Find the length of AC.



$$\sqrt{6.14}$$

35) A radio tower is 67 feet tall. If a wire from the top of the tower meets the ground at a  $32^\circ$  angle. How long is the wire?

$$x \approx 126.43 \text{ ft}$$

36) If the angle of elevation to the sun at a certain time of the day is  $48^\circ$ . Find the height of a tree whose shadow at that time of day is 28 meters.

$$x \approx 31.10 \text{ m}$$

37) From the top of a lighthouse, 170 feet above sea level, the angle of depression to a boat at sea level is  $38^\circ$ . Find the distance from the boat to the base of the lighthouse.

$$x \approx 217.59 \text{ ft}$$

38) A pilot flying at an altitude of 14,000 feet sights two airports directly in front of him. The angle of depression to one airport is  $68^\circ$ , and the angle of depression to the second airport is  $15^\circ$ . What is the distance between the two airports? Round to the nearest foot.



Airport #1

Airport #2

$$= 46,592 \text{ ft}$$