Right triangle review

Name_____

Is it possible to construct a triangle with the given side lengths? If not, why not?

1) 22, 26, 65

2) 2, $\sqrt{5}$, 4

3) 5, 4, 3 $\sqrt{10}$

Use an inequality to describe the possible lengths for the remaining legs.

4) 6in, 9in

5) 4ft, 12ft

6) 9m, 18m
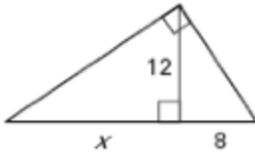
Find the geometric mean of the two numbers.
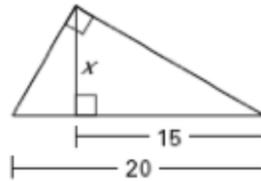
7) 2 and 8

8) 3 and 9

9) 7 and 14

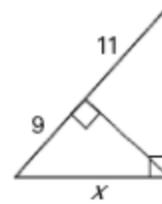Find the value of x- express in simplest radical form.

10)

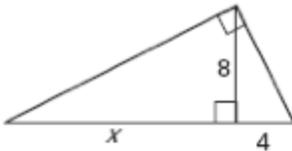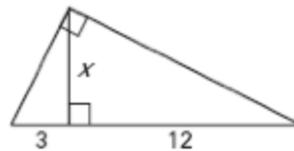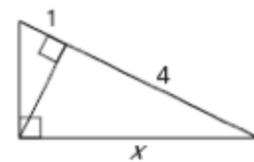11)

12)

13)

14)

15)

If possible, classify the given lengths as an acute, obtuse or right triangle.

16) 5, 12, 13

17) $\sqrt{8}$, 4, 6
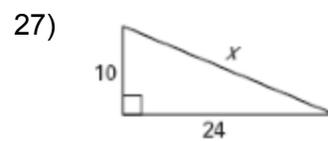
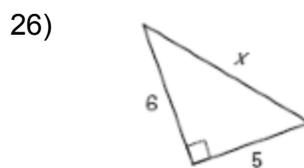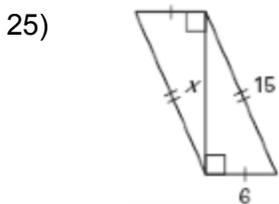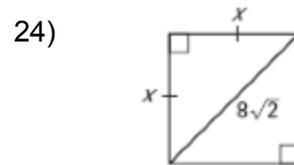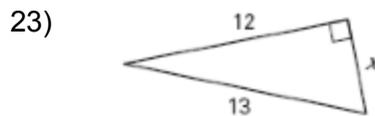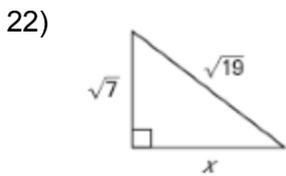18) 21, 20, 28

19) 4, 5, $3\sqrt{10}$

20) 3, 6, $3\sqrt{5}$
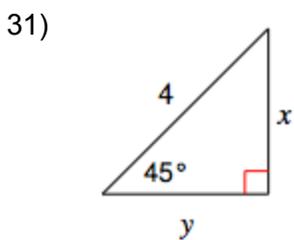
21) 14, 48, 50

Find the unknown side lengths. Answer in simplest radical form. Circle the pythagorean triple answers.

22)

23)

24)

25)

26)

27)

Find the value of the variables. Leave answer in most exact form.

28)

29)

30)

31)

32)

33)
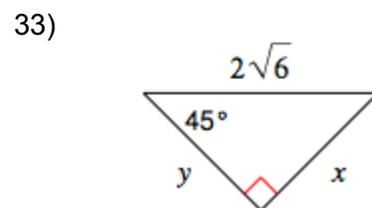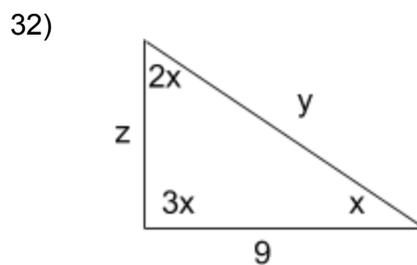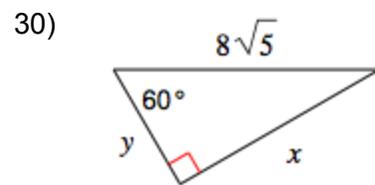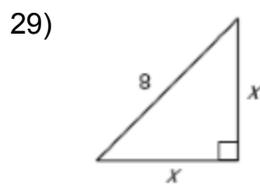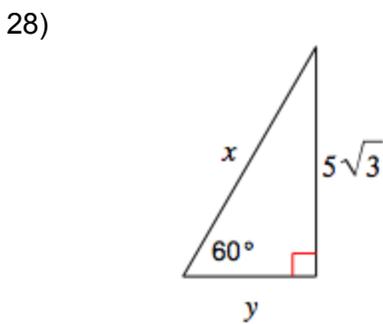
Find the value of the variables- leave in simplest radical form.

34) x= _____ y = _____ z = _____

35) w = _____ x = _____ y = _____ z = _____
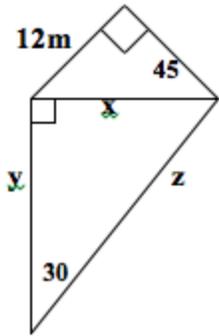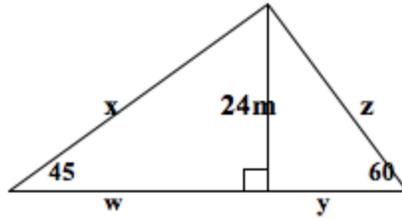
Find the requested ratios:

36)

37)

38)

Tan A_____ Tan B_____

Sin A_____ Sin B_____

Cos A_____ Cos B_____
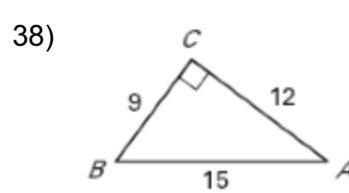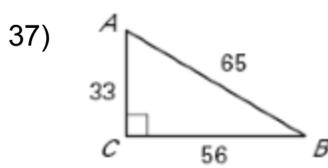
Find the value of the variables to the nearest tenth:

39)

40)

41)

42)

43)

44)
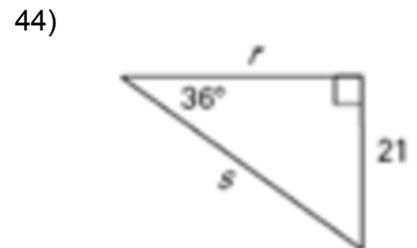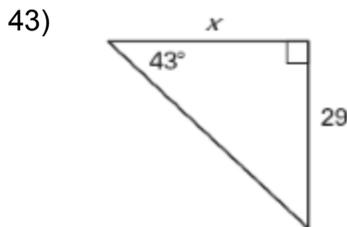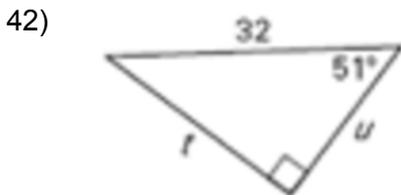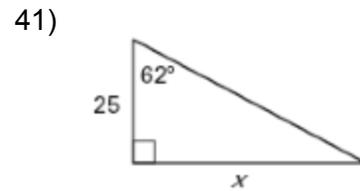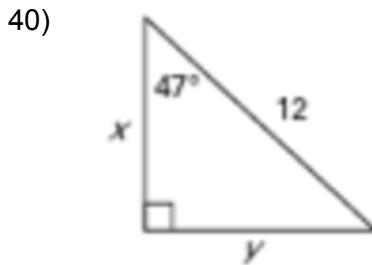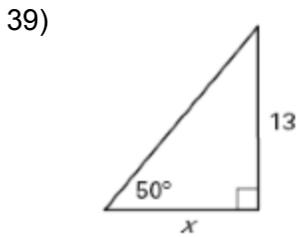
Solve. Show all work including a diagram and the trig ratio used. Unless indicated otherwise, **round all answers to the nearest integer.**

45. Timmy spots a tall building walking around Dallas. Before he walked the 400 feet to the base of the building, his angle of elevation to the top was 66°. How tall is the building?

46. Timmy has decided to climb to the top of the building. When he gets to the top, he spots his house. The angle of depression is 6°. How far away is Timmy's house from the building?

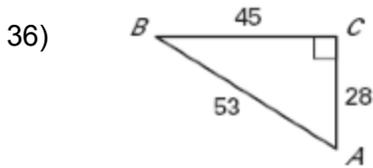47. Timmy is going to attempt to use his new grappling hook to zip line to a building close by. If his laser rangefinder points the top of the building 200 feet from his current location (the top of a higher building), and he knows the two buildings are 150 feet apart, what is the angle of depression to the other building?

48. Timmy has had enough for the day and exits the building to get on the bus home. The bus turns onto a overpass with a grade of 15%. What is the angle of elevation for the overpass?

49. Using his handy stopwatch, Timmy determined it took the bus 8.4 seconds to get to the top of the overpass. Assuming the bus maintained a speed of 55mph, how tall was the overpass?

50. Sadly, Timmy's bus was knocked off the overpass by an alien spacecraft. Exiting the wreckage of the bus 10 seconds after impact, Timmy noticed the spacecraft was directly over the American Airlines, 2000 yards away. If the angle of elevation to the spacecraft was 27°, how far did the spaceship travel in 10 seconds? What was its speed in mph?

51) An 9-ft tall alien is standing on a cliff. The alien is looking down at his spaceship below with an angle of depression of 15°. The spaceship is exactly 787 feet from the base of the cliff on which he stands. Find the height of the cliff.

15°   9 ft

h

787 feet
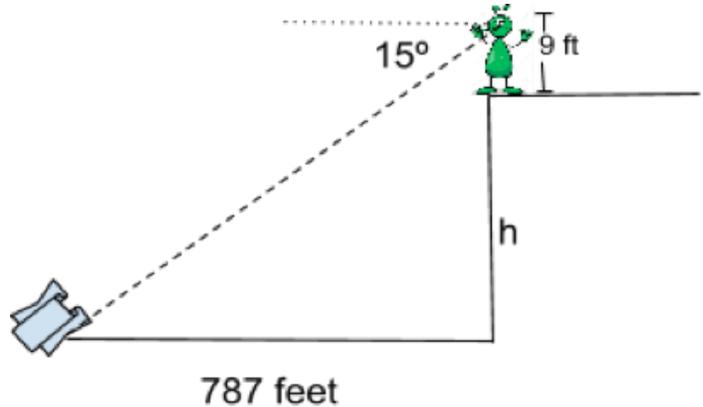
52. The height of an isosceles triangle is 8 feet. The base of the isosceles triangle is 23 feet. What is the measure of one of the base angles of the triangle? Round your answer to the nearest degree.

53. Jasmine wants to know how far away she is from the Reunion Tower in Dallas. She knows the tower is 560 feet tall. From her eye level, which is 5 feet above the ground, Jasmine found the angle of elevation to the top of the building to be 32°. What is the distance between Jasmine and the Reunion Tower? (Round your answer to the nearest tenth of a foot.)

54.   Brandon and Callum are looking up to the 30 foot tall scoreboard from the football field, making the angles shown in the diagram below. What is the distance between Brandon, B, and Callum, C?

30 ft
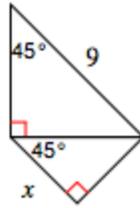
C   34°   62°
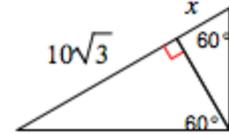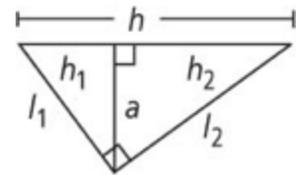
B
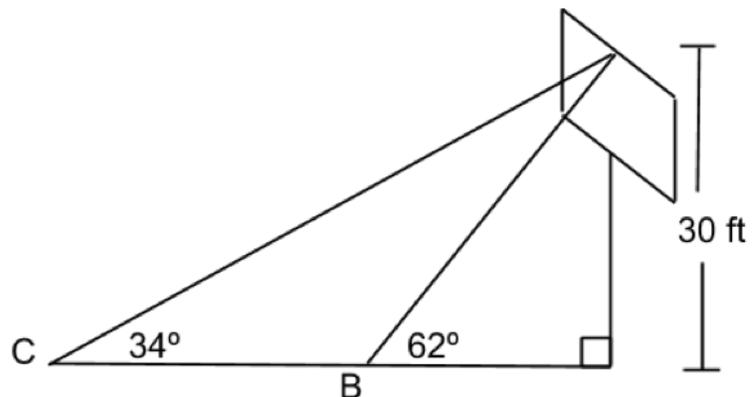
Solve for x:

55)
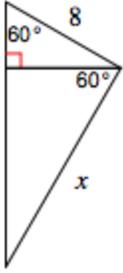
56)

57)

The diagram shows the parts of a right triangle with an altitude to the hypotenuse. For the two given measures, find the other four. Use simplest radical form.

58) $h = 12$, $h_1 = 4$

59) $a = 6$, $h_2 = 9$

60) $L_1 = 6\sqrt{3}$, $h_2 = 3$

61) $H_1 = 5$, $l_2 = 2\sqrt{51}$