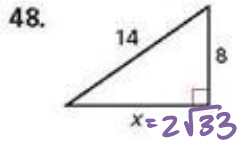Find the value of x. Give your answer in simplest radical form.

47.

2

6

$x = 2\sqrt{10}$

48.

14

8
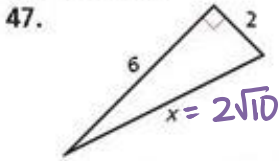
$x = 2\sqrt{33}$

47) $2^2 + 6^2 = c^2$
$4 + 36 = c^2$
$\sqrt{40} = \sqrt{c^2}$
$\boxed{c = 2\sqrt{10}}$

48) $x^2 + 8^2 = 14^2$
$x^2 + 64 = 196$
$\sqrt{x^2} = \sqrt{132}$
$\boxed{x = 2\sqrt{33}}$

Find the missing side length. Tell if the sides form a Pythagorean triple. Explain.

49.

x

4.5

7.5

50.

$x = 5 \cdot 8 = 40$

$3 = \dfrac{24}{8}$ $\dfrac{32}{8} = 4$
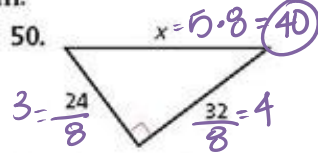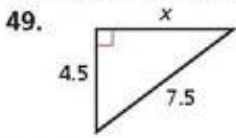
49) Not a triple
$4.5^2 + x^2 = 7.5^2$
$20.25 + x^2 = 56.25$
$x^2 = 36$
$\boxed{x = 6}$

50) yes
3-4-5 triple
$\boxed{x = 40}$

Tell if the measures can be the side lengths of a triangle. If so, classify the triangle as acute, obtuse, or right.

51. 9, 12, 16

52. 11, 14, 27

53. 1.5, 3.6, 3.9

54. 2, 3.7, 4.1

53) $1.5 + 3.6 > 3.9$
$5.1 > 3.9$ ✓
$1.5^2 + 3.6^2 ? 3.9^2$
$15.21 = 15.2$ $\boxed{\text{Right}}$

54) $2 + 3.7 > 4.1$
$5.7 > 4.1$ ✓
$2^2 + 3.7^2 ? 4.1^2$
$17.69 > 16.81$
$\boxed{\text{obtuse}}$

51) $9 + 12 > 16$
$21 > 16$ ✓
$9^2 + 12^2 ? 16^2$
$225 > 36$
$\boxed{\text{obtuse}}$
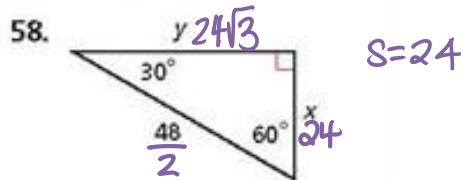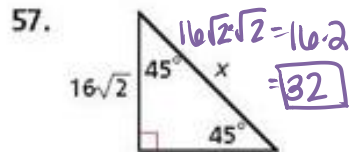
52) $11 + 14 ? 27$
$25 > 27$
$\boxed{\text{Not a triangle}}$

Find the values of the variables. Give your answers in simplest radical form.

55.

26

45°

$x = 26\sqrt{2}$

56.

12   $6\sqrt{2}$ x

$x 6\sqrt{2}$

$\dfrac{12}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}} = \dfrac{12\sqrt{2}}{2} = \boxed{6\sqrt{2}}$

57.

$16\sqrt{2}$ 45° x 45°

$16\sqrt{2}\sqrt{2} = 16 \cdot 2 = \boxed{32}$

58.

y $24\sqrt{3}$

30°

$\dfrac{48}{2}$ 60° x 24

$S = 24$

59.

y ⑫

60   6   30°

x $6\sqrt{3}$

60.

14

30

$\dfrac{14\sqrt{3}}{3}$ x

60° y

$S = \dfrac{14}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{14\sqrt{3}}{3} = S$

$2\left(\dfrac{14\sqrt{3}}{3}\right) = \boxed{\dfrac{28\sqrt{3}}{3} = y}$
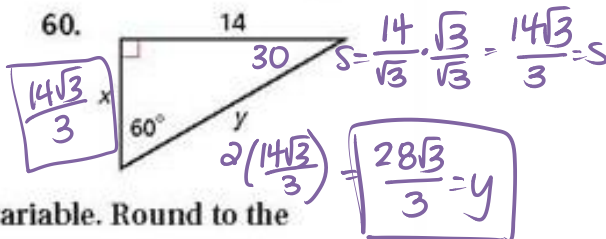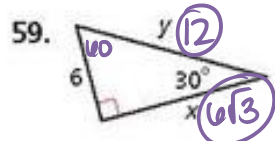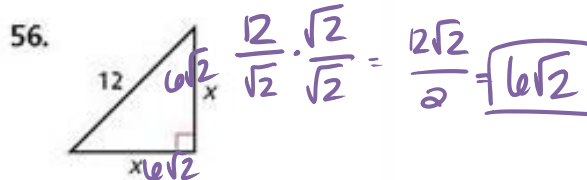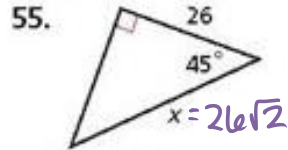
Find the value of each variable. Round to the nearest inch.

61.

s

45   30 ft

s s

45

s

62.

18 ft 30   18 ft

h

60°

18 ft

$S = \dfrac{18}{2} = 9$

$S = \dfrac{30}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}} = \dfrac{30\sqrt{2}}{2} = \boxed{15\sqrt{2} = S}$

$\boxed{h = 9\sqrt{3}}$