

Name: Key

1. Simplify $\sqrt{\frac{25}{121}}$

$$\frac{5}{11}$$

2. Simplify $\pm\sqrt{49}$

$$\pm 7$$

3. Simplify $\sqrt[3]{-64}$

$$-4$$

4. Simplify $\sqrt[3]{\frac{1}{125}}$

$$\frac{1}{5}$$

5. Simplify $8 - 3\sqrt{4}$

$$\begin{aligned} 8 - 3(2) \\ 8 - 6 \\ 2 \end{aligned}$$

6. Simplify $2\sqrt[3]{8} + 4\sqrt[3]{-27}$

$$\begin{aligned} 2(2) + 4(-3) \\ 4 - 12 \\ -8 \end{aligned}$$

7. Simplify $\sqrt{.81} + 8.1$

$$\begin{aligned} 0.9 + 8.1 \\ 9 \end{aligned}$$

8. Simplify $(\sqrt{169})^2 - (\sqrt[3]{64})^3$

$$\begin{aligned} 169 - 64 \\ 105 \end{aligned}$$

9. The area of a square is 3,600 sq. in.
Find the length of one side of the square.

$$\begin{aligned} A &= s^2 \\ 3600 &= s^2 \\ \sqrt{3600} &= s \end{aligned}$$

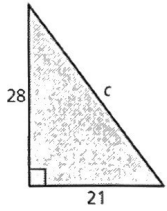
$$60 \text{ in.}$$

10. The volume of a cube is 1,728 cu. cm
Find the length of one side of the cube.

$$\begin{aligned} V &= s^3 \\ 1,728 &= s^3 \\ \sqrt[3]{1,728} &= s \end{aligned}$$

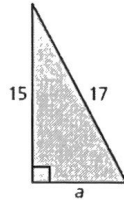
$$12 \text{ cm}$$

11. Find the missing length



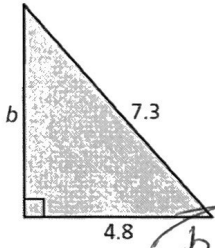
$$21^2 + 28^2 = c^2$$
$$c = \sqrt{21^2 + 28^2}$$
$$c = \sqrt{1225}$$
$$c = 35$$

12. Find the missing length



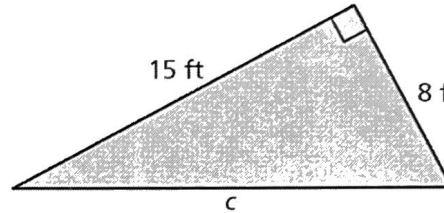
$$a^2 + 15^2 = 17^2$$
$$a^2 = 17^2 - 15^2$$
$$a = \sqrt{17^2 - 15^2}$$
$$a = \sqrt{64} = 8$$

13. Find the missing length



$$4.8^2 + b^2 = 7.3^2$$
$$b^2 = 7.3^2 - 4.8^2$$
$$b = \sqrt{7.3^2 - 4.8^2}$$
$$b = \sqrt{30.25}$$
$$b = 5.5$$

14. Find the missing length



$$8^2 + 15^2 = c^2$$
$$c = \sqrt{8^2 + 15^2}$$
$$c = \sqrt{289}$$
$$c = 17$$

15. Classify the number

(choices: natural, whole, integer, rational, irrational)

-8.2

Rational

16. Classify the number

(choices: natural, whole, integer, rational, irrational)

19

natural

17. Classify the number

(choices: natural, whole, integer, rational, irrational)

-4

integer

18. Classify the number

(choices: natural, whole, integer, rational, irrational)

$\sqrt{5}$

irrational

19. Classify the number

(choices: natural, whole, integer, rational, irrational)

$\frac{2}{3}$

rational

20. Classify the number

(choices: natural, whole, integer, rational, irrational)

$0.\bar{2}$

rational

21. Estimate $\sqrt{10}$ to the nearest

(a) whole number $\textcircled{3}$

(b) tenth $\textcircled{3.2}$

22. Estimate $\sqrt[3]{100}$ to the nearest

(a) whole number $\textcircled{5}$

(b) tenth $\textcircled{4.6}$

23. Which number is greater $\sqrt{70}$ or 8.3 ?

$\textcircled{\sqrt{70}}$

24. Which number is greater $-\sqrt{200}$ or -15 ?

$\textcircled{-\sqrt{200}}$

25. Write the repeating decimal $0.\bar{5}$ as a fraction

$\textcircled{\frac{5}{9}}$

26. Write the repeating decimal $0.\bar{18}$ as a fraction

$\frac{18 \div 9}{99 \div 9} = \textcircled{\frac{2}{11}}$

27. Write the repeating decimal $0.1\bar{3}$ as a fraction

$0.1\bar{3} = 1.\bar{3} \div 10 = 1\frac{3}{9} \div 10$
 $= 1\frac{1}{3} \div 10 = \frac{24}{3} \times \frac{1}{10} = \textcircled{\frac{2}{15}}$

28. Write the repeating decimal $2.\bar{1}$ as a fraction

$\textcircled{2\frac{1}{9}}$

29. Find the distance between the points
(1,3) and (4,-1)

$$\begin{aligned} d &= \sqrt{3^2 + 4^2} \\ &= \sqrt{25} \\ &= \textcircled{5} \end{aligned}$$

30. Find the distance between the points
(-2,5) and (10,0)

$$\begin{aligned} d &= \sqrt{12^2 + 5^2} \\ &= \sqrt{169} \\ &= \textcircled{13} \end{aligned}$$

31. Find the distance between the points (-6,-3) and (2,12)

$$d = \sqrt{8^2 + 15^2}$$
$$= \sqrt{289}$$
$$= 17$$

32. Find the distance between the points (0,0) and (19,40)

$$d = \sqrt{19^2 + 40^2}$$
$$= \sqrt{1961}$$
$$\approx 44.3$$

33. Find the distance between the points (2,1) and (-3,6)

$$d = \sqrt{5^2 + 5^2}$$
$$= \sqrt{50}$$
$$\approx 7.1$$

34. Find the distance between the points (1,-7) and (4,-5)

$$d = \sqrt{3^2 + 2^2}$$
$$= \sqrt{13}$$
$$\approx 3.6$$

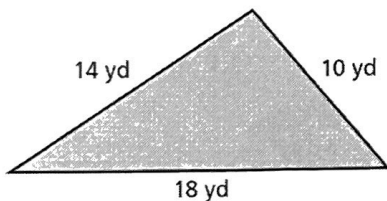
35. Find the distance between the points (-9,3) and (-5,-8)

$$d = \sqrt{4^2 + 11^2}$$
$$= \sqrt{137}$$
$$\approx 11.7$$

36. Find the distance between the points (6,3) and (-3,-9)

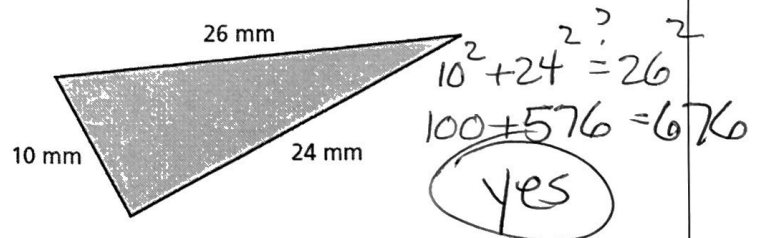
$$d = \sqrt{9^2 + 12^2}$$
$$= \sqrt{225}$$
$$= 15$$

37. Is the triangle a right triangle ?



$$10^2 + 14^2 \stackrel{?}{=} 18^2$$
$$100 + 196 = 324$$
$$296 \neq 324$$
$$\text{NO}$$

38. Is the triangle a right triangle ?



$$10^2 + 24^2 \stackrel{?}{=} 26^2$$
$$100 + 576 = 676$$
$$\text{yes}$$

39. Is a triangle with sides 4.0, 4.2, and 5.8 a right triangle ?

$$4^2 + 4.2^2 \stackrel{?}{=} 5.8^2$$
$$16 + 17.64 = 33.64$$
$$\text{yes}$$

40. Is a triangle with sides 31, 35, and 16 a right triangle ?

$$16^2 + 31^2 \stackrel{?}{=} 35^2$$
$$256 + 961 = 1225$$
$$\text{NO}$$

41. Is a triangle with sides 25, 312, and 313 a right triangle ?

$$25^2 + 312^2 = 313^2$$
$$625 + 97344 = 97,969$$

yes

42. Is a triangle with sides 15, 36, and 39 a right triangle ?

$$15^2 + 36^2 = 39^2$$
$$225 + 1296 = 1521$$

yes

43. Simplify $-\sqrt[3]{1,000}$

$$-10$$

44. Simplify $\sqrt{\frac{4}{9}}$

$$\frac{2}{3}$$

45. Simplify $3\sqrt{100} - 4\sqrt{49}$

$$3(10) - 4(7)$$

$$2$$

46. Simplify $(\sqrt{3025})^2$

$$55$$

47. Write the repeating decimal $0.\overline{24}$ as a fraction

$$\frac{24 \div 3}{99 \div 3} = \frac{8}{33}$$

48. Write the repeating decimal $-2.\overline{8}$ as a fraction

$$-2\frac{8}{9}$$

49. Write the repeating decimal $1.4\overline{9}$ as a fraction

$$1.4\overline{9} = 14.\overline{9} \div 10$$
$$= 14\frac{9}{9} \div 10$$
$$= 15 \div 10$$
$$= 1\frac{1}{2}$$

50. Write the repeating decimal $0.2\overline{6}$ as a fraction

$$0.2\overline{6} = 2.\overline{6} \div 10$$
$$= 2\frac{6}{9} \div 10 = 2\frac{2}{3} \div 10$$
$$= \frac{48}{3} \times \frac{1}{50} = \frac{4}{15}$$

51. Classify the number
(choices: natural, whole, integer, rational, irrational)

7π
irrational

52. Classify the number
(choices: natural, whole, integer, rational, irrational)

-1
integer

53. Estimate $-\sqrt{20}$ to the nearest

(a) whole number -4

(b) tenth -4.5

54. Estimate $\sqrt[3]{345}$ to the nearest

(a) whole number 7

(b) tenth 7.0

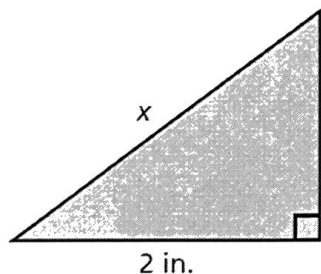
55. Which number is greater $\sqrt{50}$ or 7.1 ?

7.1

56. Which number is greater $\sqrt{8}$ or $2\frac{4}{5}$?

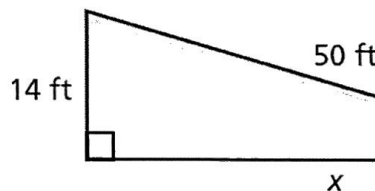
$\sqrt{8}$

57. Find the missing length



$$\begin{aligned} 1.5^2 + 2^2 &= x^2 \\ 2.25 + 4 &= x^2 \\ 6.25 &= x^2 \\ \sqrt{6.25} &= x \\ x &= 2.5 \end{aligned}$$

58. Find the missing length



$$\begin{aligned} x^2 + 14^2 &= 50^2 \\ x^2 + 196 &= 2500 \\ x^2 &= 2304 \\ x &= \sqrt{2304} \\ x &= 48 \end{aligned}$$

59. Find the distance between the points
(-5,2) and (-13,-13)

$$\begin{aligned} d &= \sqrt{8^2 + 15^2} \\ &= \sqrt{289} \\ &= 17 \end{aligned}$$

60. Simplify $\pm\sqrt{144}$

± 12