

1. Jane hangs a square-shaped mirror in her bathroom. The area of the mirror is 361 square inches. What is the length of one side of the mirror?

- A. 18 inches
- B. 19 inches
- C. 90.25 inches
- D. 180.50 inches

2. What is the value of $\sqrt[3]{27}$?

- A. 3
- B. 9
- C. 24
- D. 81

3. What is the value of $\sqrt{64}$?

- A. 4
- B. 8
- C. 16
- D. 32

4. Which is an expression equivalent to $\sqrt{64}$?

A. 32

B. 2^3

C. 4^2

D. $4\sqrt{16}$

5. If $y^2 = 100$, what is one possible value of y ?

A. $\sqrt{100}$

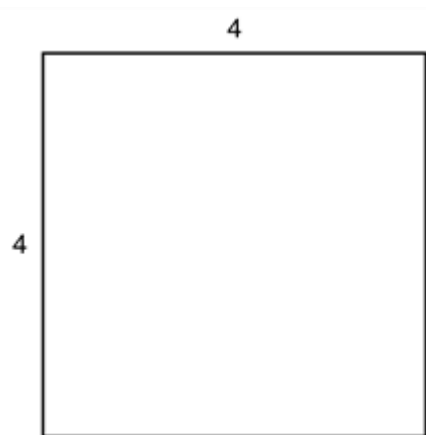
B. $\sqrt{50}$

C. $\sqrt{25}$

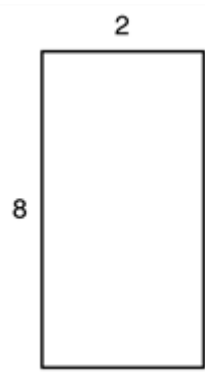
D. $\sqrt{5}$

6. Which model BEST represents $\sqrt{16}$?

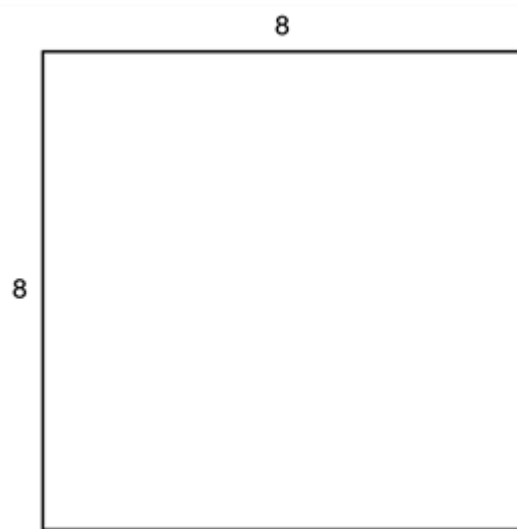
A.



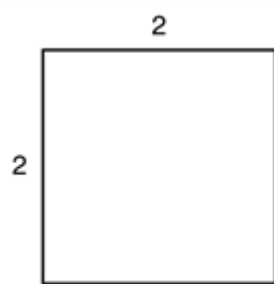
B.



C.

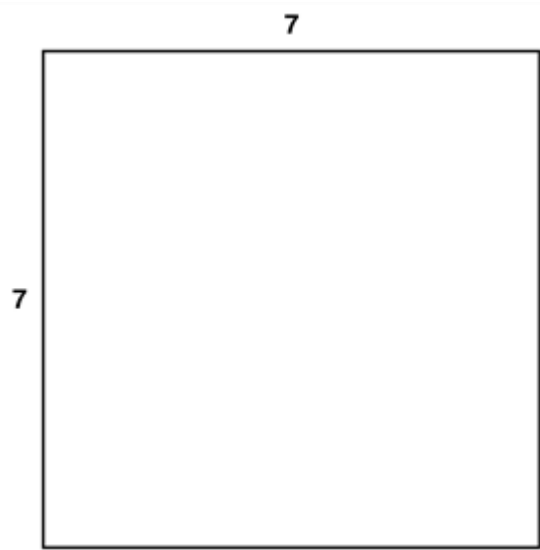


D.

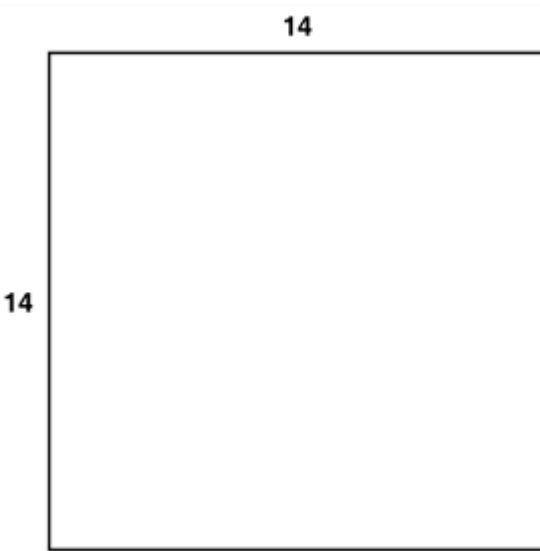


7. Which model BEST represents $\sqrt{196}$?

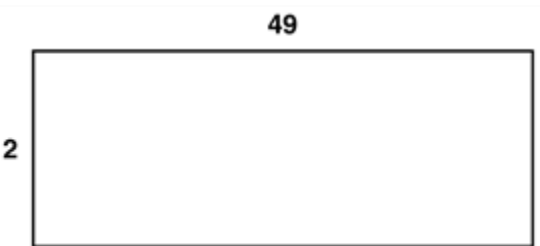
A.



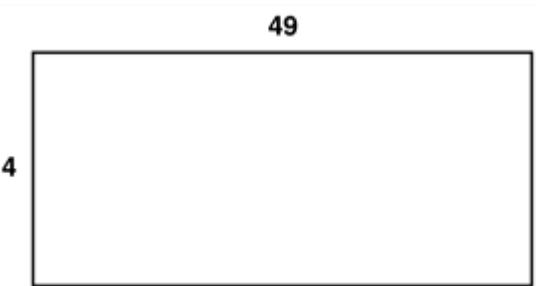
B.



C.

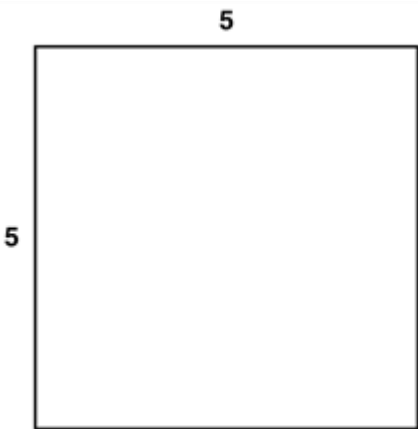


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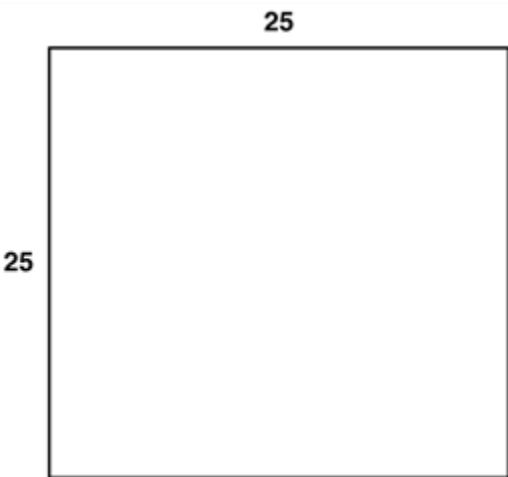


8. Which model BEST represents $\sqrt{625}$?

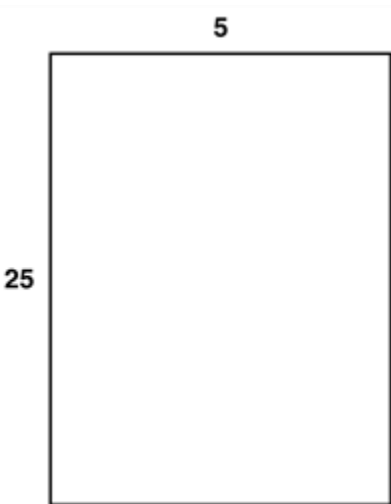
A.



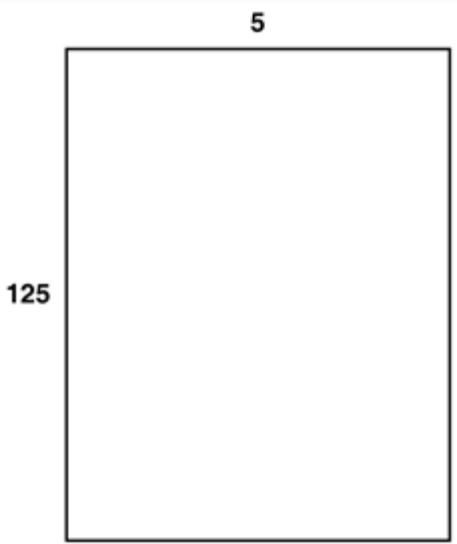
B.



C.

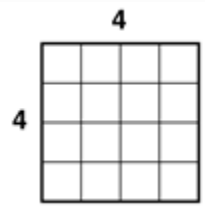


D.

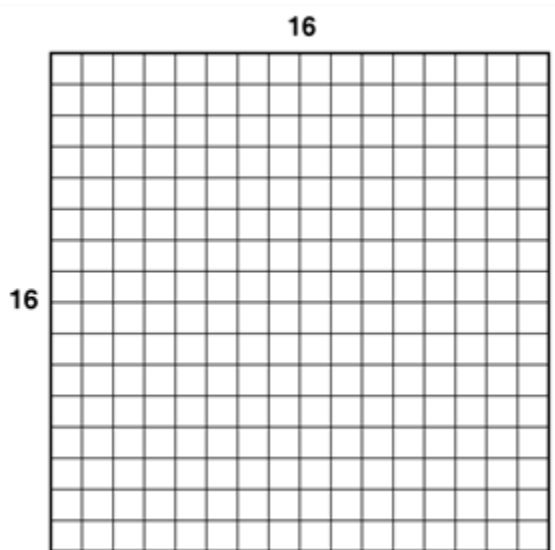


9. Which model BEST represents $\sqrt{256}$?

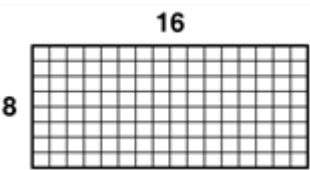
A.



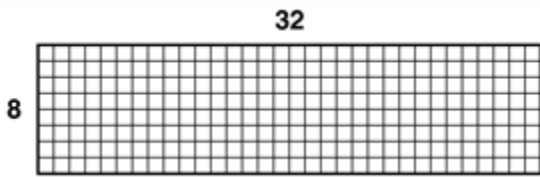
B.



C.

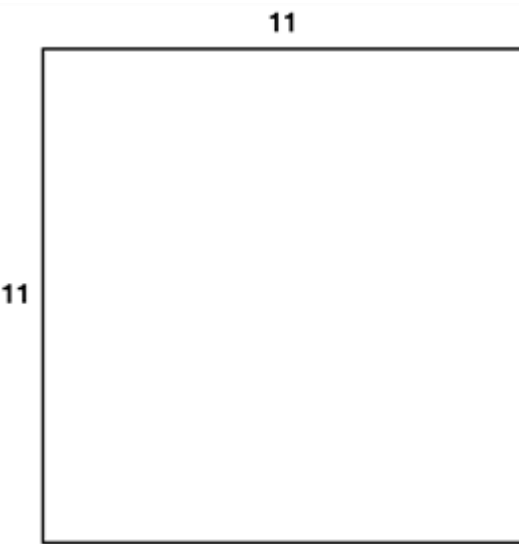


D.

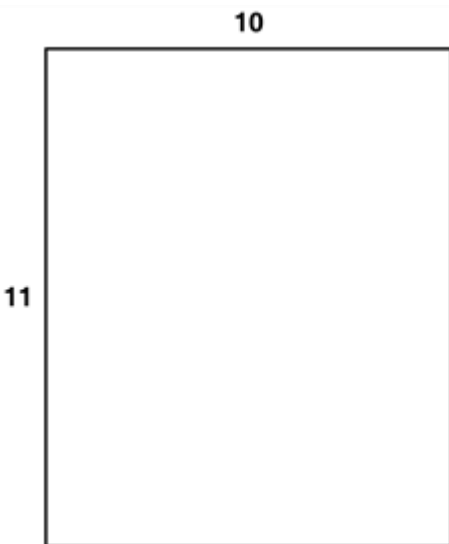


10. Aashi needs to solve $\sqrt{121}$ on her math homework. Which one of these models would be BEST for her to use?

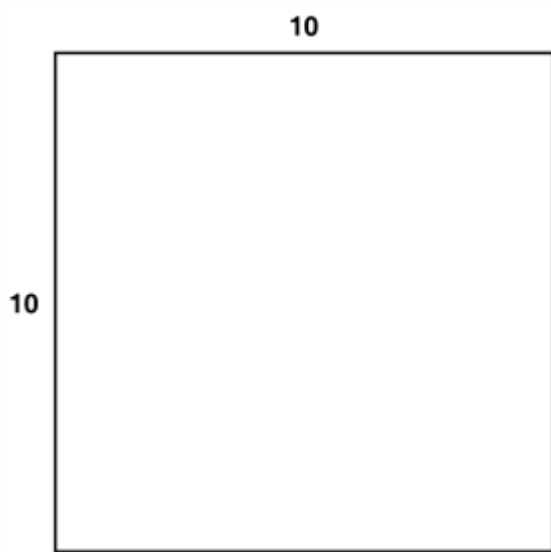
A.



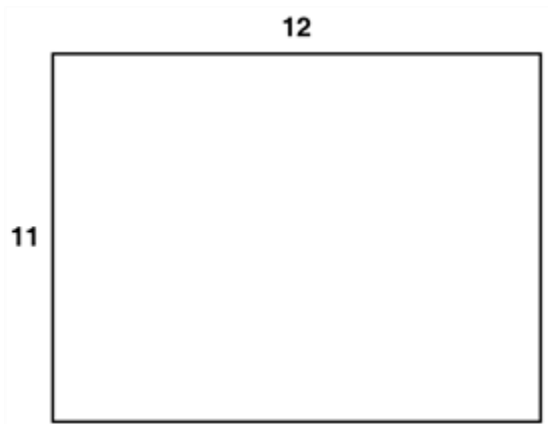
B.



C.



D.



11. In the equation $x^3 = 8$, what is the value of x ?

A. $\sqrt[3]{512}$

B. $\sqrt[3]{64}$

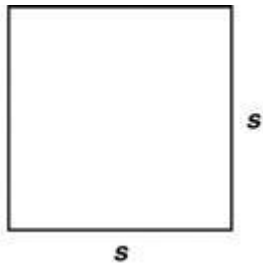
C. $\sqrt[3]{24}$

D. $\sqrt[3]{8}$

12. What number is $\sqrt[3]{64}$ equivalent to?

- A. 4
- B. 8
- C. 16
- D. $21\frac{1}{3}$

13. The area of this square is 144 square inches.



What is the length of each side, s , of the square?

- A. 72 inches
 - B. 36 inches
 - C. 16 inches
 - D. 12 inches
14. Which represents the solution to $x^3 = 512$?
- A. $x = \sqrt[3]{512}$
 - B. $x = 512^3$
 - C. $x = 512^2$

D. $x = \sqrt{512}$

15. Which number is the square root of 64?

A. 4

B. 8

C. 12

D. 16

16. Which of the following is equivalent to $\sqrt{196}$?

A. $\sqrt{14}$

B. $7\sqrt{2}$

C. 14

D. 98

17. What is the value of $\sqrt{16}$?

A. $\sqrt{4}$

B. $\sqrt{8}$

C. 4

D. 8

18. What is the value of x when $\sqrt{x} = 20$?

- A. 20
- B. 40
- C. 200
- D. 400

19. What is the value of $\sqrt{36}$?

- A. 18
- B. 9
- C. 6
- D. 4

20. The carpet used in Parker's bedroom covers an area of 121 square feet. If the carpet is square, what is the length of each side of the carpet?

- A. 9 feet
- B. 11 feet
- C. 12 feet
- D. 13 feet

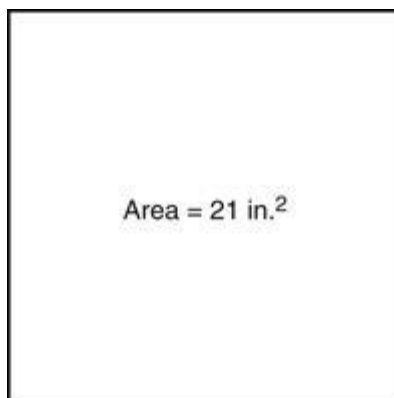
21. Carrie made a square tablecloth with an area of 169 square inches. What was the length of each side of the tablecloth?

- A.** 9 inches
- B.** 13 inches
- C.** 17 inches
- D.** 23 inches

22. The number $\sqrt{10}$ can be represented by which of the following geometric models?

- A.** The perimeter of a square with an area of 100 square units
- B.** The side of a square with a perimeter of 10 units
- C.** The perimeter of a square with sides of $\frac{\sqrt{10}}{4}$ units in length
- D.** The side of a square with an area of 10 square units

23. The figure below represents a square with an area of 21 square inches.



Which value below represents the side length of this square, in inches?

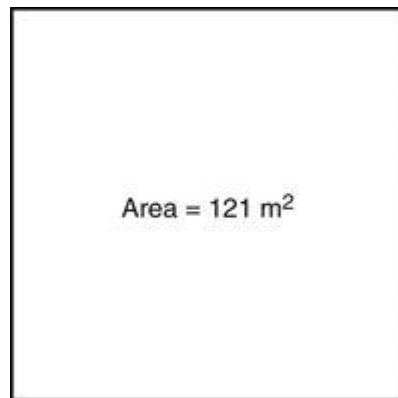
A. $\sqrt{21^2}$

B. $\frac{21}{2}$

C. $\frac{21}{4}$

D. $\sqrt{21}$

24. The figure below models a square with an area of 121 square meters.



Which expression BEST represents the length, in meters, of each side of the square?

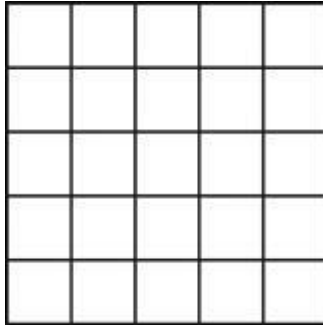
A. $\sqrt{121^2}$

B. $\frac{121}{4}$

C. 4×121

D. $\sqrt{121}$

25. Which value represents the square root of the number of squares in the array below?



- A. 5
- B. 9
- C. 20
- D. 25

26. Riya wants to paint a wall in her crafting room. She measures the length and the width of the wall and finds that it is a square and that the area of the wall is 81 square feet. What is the length of Riya's wall?

- A. 4.5 feet
- B. 8.1 feet
- C. 9.0 feet
- D. 20.25 feet

27. Given $144 = 12^2$, which statement is true?

- A. $144^2 = 12$
- B. $\sqrt{144^2} = 12$
- C. $\sqrt{12^2} = 144$

D. $\sqrt{144} = 12$

28. Given $5 = \sqrt{25}$, which statement is true?

A. $25^2 = 5$

B. $\sqrt{5} = 25$

C. 25 is the area of a square whose side has length 5.

D. 25 is the perimeter of a square whose side has length 5.

29. Given $\sqrt{49} = 7$, which of the following statements is true?

A. $\sqrt{7} = 49$

B. $49^2 = 7$

C. 7 is the length of the side of a square whose area is 49.

D. 7 is the length of the side of a square whose perimeter is 49.

30. Which statement is justified by $14^2 = 196$?

A. 14 is a perfect square.

B. 196 is a perfect square.

C. $\sqrt{14} = 196$

D. $196^2 = 14$

31. Marsha cut out a square piece of fabric with an area of 32 square feet. Which expression could be used to find the side length of the fabric?

A. $32 - 4$

B. $32 \div 4$

C. $\sqrt{32} - 4$

D. $\sqrt{32}$

32. If $8^2 = 64$, which statement is true?

A. $\sqrt{8} = 64$

B. $\sqrt{64} = 8$

C. $81 = 8^2$

D. $64^2 = 8$

33. The side lengths of four squares are represented in two different ways in the table below.

Four Squares

Square A	2 units	$\sqrt{4}$ units
Square B	4 units	$\sqrt{16}$ units
Square C	5 units	$\sqrt{25}$ units
Square D	7 units	$\sqrt{49}$ units

What is another way to represent the side length of a square with a side length of 11 units?

A. $\sqrt{11}$

B. $\sqrt{55}$

C. $\sqrt{121}$

D. $\sqrt{144}$

34. Which choice is both the square of an integer and the cube of an integer?

A. 121

B. 100

C. 64

D. 16

35. A square has an area of 289 in^2 . What is the side length of the square?

A. 7 in.

B. 9 in.

C. 13 in.

D. 17 in.

36. What is the positive value of x in the equation $x^2 = \frac{36}{64}$?

A. $\frac{3}{4}$

B. $\frac{9}{16}$

C. $\frac{3}{16}$

D. $\frac{3}{32}$

37. A square has an area of 0.49 square inches. What is the perimeter of the square?

A. 0.07 inch

B. 0.28 inch

C. 0.7 inch

D. 2.8 inches

38. What is the value of x in the equation $x^2 = 1.21$?

A. 0.0605

B. 0.11

C. 0.605

D. 1.1

39. A cube has a volume of 343 cm^3 . What is the total surface area of the cube?

A. 49 cm^2

B. 98 cm^2

C. 147 cm^2

D. 294 cm^2

40. A square has an area of 0.49 square inches. What is the length of one side of the square?

A. 7.00 inches

B. 2.50 inches

C. 0.70 inch

D. 0.25 inch

41. A square has an area of 64 square centimeters. What is the perimeter of the square?

A. 8 centimeters

B. 16 centimeters

C. 32 centimeters

D. 64 centimeters

42. What is the value of x in the equation $x = \sqrt[3]{\frac{8}{125}}$?

A. $\frac{2}{5}$

B. $\frac{8}{5}$

C. $\frac{2}{125}$

D. $\frac{24}{125}$

43. A square has an area of 81 square inches. What is the perimeter of the square?

A. 40 inches

B. 36 inches

C. 20 inches

D. 9 inches

44. What is the value of $\sqrt[3]{216}$?

A. 108

B. 72

C. 15

D. 6

45. A cube has a volume of $\frac{125}{27}$ cm³. What is the area of one side of the cube?

A. $\frac{5}{3}$ cm²

B. $\frac{25}{3}$ cm²

C. $\frac{5}{9}$ cm²

D. $\frac{25}{9}$ cm²

46. What is the value of g in the equation $g^2 = 1.21$?

A. 0.11

B. 0.605

C. 1.1

D. 6.05

47. A square has an area of 225 ft². What is the perimeter of the square?

A. 15 ft

B. 25 ft

C. 60 ft

D. 100 ft

48. A cube has a volume of 27 cm³. What is the length of one edge of the cube?

A. 3 cm

B. 5 cm

C. 9 cm

D. 13.5 cm

49. A cube has a volume of 8 cm^3 . What is the perimeter of one face of the cube?

A. 2 cm

B. 4 cm

C. 8 cm

D. 16 cm

50. The volume of a cube is 343 cubic inches. What is the length of one side of this cube?

A. 6.4 inches

B. 7 inches

C. 7.6 inches

D. 8 inches

51. Which could be the value of x in the equation $x^2 = \frac{4}{25}$?

A. $\frac{4}{5}$

B. $\frac{2}{5}$

C. $\frac{16}{25}$

D. $\frac{2}{25}$

52. A cube has a volume of 343 cm^3 . What is the area of one face of the cube?

- A. 7 cm^2
- B. 14 cm^2
- C. 19 cm^2
- D. 49 cm^2

53. A cube has a volume of 64 cm^3 . What is the surface area of the cube?

- A. 64 cm^2
- B. 96 cm^2
- C. 192 cm^2
- D. 384 cm^2

54. What is the value of x in the equation $x^2 = 0.0064$?

- A. 0.8
- B. 0.08
- C. 0.008
- D. 0.0008

55. What is the solution to the equation $2x^3 = 686$?

- A. $x = 4.4$
- B. $x = 7.0$
- C. $x = 18.5$
- D. $x = 26.0$

56. What is the value of x in the equation $x^3 + 2 = 10$?

- A. 2
- B. 3
- C. 4
- D. 5

57. What is the value $(\sqrt{16} + \sqrt[3]{27})^2$

- A. 25
- B. 49
- C. 121
- D. 289

58. The area of a square is 100 cm^2 . What is the length of a side of the square?

- A. 50 cm

- B. 25 cm
- C. 20 cm
- D. 10 cm

59. What is the value of $\sqrt[3]{64} \times \sqrt{100}$?

- A. 40
- B. 80
- C. 160
- D. 200

60. Which choice is both a perfect square and a perfect cube?

- A. $\frac{1}{4}$
- B. $\frac{1}{8}$
- C. $\frac{1}{16}$
- D. $\frac{1}{64}$

61. Brian has two cubes.

- The first cube has a volume of 125 cm^3 .
- The second cube has a volume of 343 cm^3 .

What is the difference in the area of one face of the second cube and the area of one face of the first cube?

- A. 2 cm^2
- B. 24 cm^2
- C. 49 cm^2
- D. 218 cm^2

62. A cube has a volume of 125 cubic units. The expression $2x - 15$ represents the edge length, in units, of the cube. What is the value of x ?

- A. 5
- B. 10
- C. 15
- D. 20

63. A square has an area of 144 square feet. A second square has a side length that is 2 times the side length of the first square. What is the side length of the second square?

- A. 12 feet
- B. 24 feet
- C. 36 feet
- D. 72 feet

64. What is the solution to the equation $5^2 - 2^3 + \sqrt{64} = x$?

A. $x = 25$

B. $x = 29$

C. $x = 33$

D. $x = 49$

65. If $x^2 = 256$, what is the value of \sqrt{x} ?

A. 4

B. 16

C. 128

D. 256

66. A square has an area of 144 square inches. What is the length of one side of the square?

A. 36 inches

B. 18 inches

C. 12 inches

D. 3 inches

67. What is the value of $\sqrt{4^3}$?

- A. 2.3
- B. 3.5
- C. 4
- D. 8

68. Mr. Waltz calculated the volume of two cubes.

- Cube J had a volume of 216 cm^3 .
- Cube K had a volume of 64 cm^3 .

What is the difference in the measures of the side lengths of cube J and cube K?

- A. 2 cm
- B. 7 cm
- C. 76 cm
- D. 152 cm

69. A cube has a volume of $\frac{1}{64} \text{ ft}^3$. What is the perimeter for one face of the cube?

- A. $\frac{1}{16} \text{ ft}$

B. $\frac{1}{4}$ ft

C. $\frac{1}{2}$ ft

D. 1 ft

70. What is the value of x in the equation $64x^2 = 4$?

A. 8

B. 4

C. $\frac{1}{4}$

D. $\frac{1}{8}$

71. Which value of x satisfies the equation $x^3 = 27$?

A. 3

B. 9

C. 24

D. 81

72. What is the value of x in the equation $x^2 = 169$?

A. $x = 12.00$

B. $x = 13.00$

C. $x = 42.25$

D. $x = 84.50$

73. A cube has a volume of 27 cm^3 . The side lengths of the cube are doubled. What is the volume of the new cube?

A. 6 cm^3

B. 18 cm^3

C. 91 cm^3

D. 216 cm^3

74. The area of each face of a cube is 25 ft^2 . What is the volume of the cube?

A. 5 ft^3

B. 125 ft^3

C. 625 ft^3

D. $3,125 \text{ ft}^3$

75. Which is the value of x in the equation $x^2 = 400$?

A. 20

B. 100

C. 200

D. 800

76. What is the value of $\sqrt{0.81}$?

A. 0.27

B. 0.405

C. 0.9

D. 1.62

77. What is the value of $\sqrt{144}$?

A. 12

B. 18

C. 36

D. 72

78. A cube has a volume of 216 cm^3 . What is the side length of the cube?

A. 4 cm

B. 6 cm

C. 15 cm

D. 72 cm

79. What is the value of $\sqrt{36}$?

A. 1,296

B. 72

C. 18

D. 6

80. What is the value of $\sqrt[3]{0.027}$?

A. 0.09

B. 0.03

C. 0.3

D. 0.9

81. A square has an area of 64 square units. A cube has a volume of 64 cubic units. What is the difference in the side length of the square and the length of one edge of the cube?

A. 0 units

B. 2 units

C. 4 units

D. 8 units

82. What is the value of $\sqrt[3]{0.343}$?

- A. 0.07
- B. 0.114
- C. 0.7
- D. 1.029

83. The area of a square classroom is 144 ft^2 . How long is one side of the classroom?

- A. 288 ft
- B. 72 ft
- C. 36 ft
- D. 12 ft

84. What is the value of $\sqrt{0.16}$?

- A. 0.08
- B. 0.04
- C. 0.4
- D. 0.8

85. A square garden has an area of 64 ft^2 . If the length of the garden is increased by 3 ft and the width is increased by 2 ft, what is the area of the new rectangular garden?

A. 69 ft^2

B. 110 ft^2

C. 121 ft^2

D. 169 ft^2

86. A square-shaped placemat has an area of 169 in.^2 . What is the length of one side of the placemat?

A. 13 in.

B. 16 in.

C. 84.5 in.

D. 338 in.

87. What is the value of x in the equation $4x^2 = 64$?

A. 2

B. 4

C. 8

D. 16

88. Which expression equals 4?

A.

$$\sqrt{8}$$

B.

$$\sqrt{12}$$

C.

$$\sqrt{16}$$

D.

$$\sqrt{20}$$

89. What is the value of $\sqrt[3]{8}$?

A. 2

B. $2\frac{2}{3}$

C. 5

D. 24

90. Laura makes an ice cube having a volume of $\frac{27}{64}$ cubic inch. What is the side length of the ice cube?

A. $\frac{9}{64}$ in.

B. $\frac{3}{4}$ in.

C. 3 in.

D. 4 in.

91. The volume of a cube is 125 cm^3 . What is the length of each side of the cube?

A. 5 cm

B. 11.18 cm

C. 25 cm

D. 31.25 cm

92. A cube has a volume of 125 cubic inches. What is the length of one of its edges?

A. 5 inches

B. 10 inches

C. 25 inches

D. 60 inches

93. The area of a square is 196 in.^2 What is the length of one side of the square?

A. 6 in.

B. 14 in.

C. 49 in.

D. 98 in.

94. What is the value of $\sqrt{\frac{9}{16}}$?

A. $\frac{9}{4}$

B. $\frac{3}{4}$

C. $\frac{3}{8}$

D. $\frac{3}{16}$

95. What is the value of $\sqrt[3]{\frac{8}{27}}$?

A. $\frac{2}{3}$

B.

$\frac{4}{13}$

C.

$$\frac{24}{81}$$

D.

$$\frac{2}{9}$$

96. What is the value of $\sqrt[3]{3\frac{3}{8}}$?

A. $1\frac{1}{8}$

B. $1\frac{3}{8}$

C. $1\frac{1}{2}$

D. $3\frac{1}{2}$

97. The area of a square garden is 36 ft². What is the perimeter of the garden?

A. 6 ft

B. 9 ft

C. 18 ft

D. 24 ft

98. What is the sum of $\sqrt{121}$ and $\sqrt{225}$?

- A. 18
- B. 26
- C. 173
- D. 346

99. What is the value of x in the equation $x^2 = 49$?

- A. 4
- B. 7
- C. 25
- D. 98

100. Which is the value of x in the equation $x^3 = 64$?

- A. 4
- B. 8
- C. 16
- D. 21

101. What is the value of $\sqrt{0.04}$?

- A. 0.2

- B. 0.08
- C. 0.02
- D. 0.0016

102. The area of a square garden is $20\frac{1}{4}$ ft². What is the length of one side of the garden?

- A. 4.5 ft
- B. 5.1 ft
- C. 10.1 ft
- D. 10.5 ft

103. What is the value of x when $36 = x^2$?

- A. 6
- B. 18
- C. 34
- D. 72

104. What is the value of x in the equation $x^2 = \frac{4}{9}$?

- A.

$$\frac{16}{9}$$

B.

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

C.

$$\frac{2}{9}$$

D.

$$\frac{16}{81}$$

105. What is the solution to the equation shown below?

$$5x^2 = 245$$

A. 49

B. ± 49

C. 7

D. ± 7

106. What is the value of $\sqrt[3]{\frac{1}{216}}$?

A. $\frac{1}{108}$

B. $\frac{1}{72}$

C. $\frac{1}{6}$

D. $\frac{1}{2}$

107. What is the value of x in the equation $x^3 = 343$?

A. $x = 6$

B. $x = 7$

C. $x = 57$

D. $x = 114$

108. A cube has a volume of 27 cubic inches. What is the perimeter of one face of the cube?

A. 3 inches

B. 6 inches

C. 12 inches

D. 27 inches

109. What is the value of x in the equation $x^2 = \frac{81}{144}$?

A. $x = \frac{3}{4}$

B. $x = \frac{9}{16}$

C. $x = \frac{1}{4}$

D. $x = \frac{1}{16}$

110. What is the value(s) of x in the equation $7x^3 = 448$?

A. 4

B. ± 4

C. 8

D. ± 8

111. What is the value of $\sqrt{\frac{9}{49}}$?

A. $\frac{1}{49}$

B. $\frac{3}{49}$

C. $\frac{3}{7}$

D. $\frac{9}{7}$

112. What is the value(s) of x in the equation below?

$$25x^2 = 16$$

A. $\pm \frac{4}{5}$

B. $\frac{4}{5}$

C. $\pm \frac{4}{25}$

D. $\frac{4}{25}$

113. What is the value of x in $x^3 = \frac{27}{8}$?

A. $\pm \frac{3}{2}$

B. $\frac{3}{2}$

C. $\pm \frac{3}{8}$

D. $\frac{3}{8}$

114. If $x^2 = 64$, what is the value of $\sqrt[3]{x}$?

A. 2

B. 4

C. 8

D. 16

115. In the equation $x^3 = 8$, what is the value of x ?

A. 2

B. $\frac{8}{3}$

C. 5

D. 24

116. What is the value of the expression $\sqrt[3]{1000}$?

A. 3000

B. 100

C. 30

D. 10

117. Which equation has an irrational solution?

A. $x^2 = 2$

B. $x^2 = 81$

C. $x^3 = 27$

D. $x^3 = 64$

118. If $x^2 = 81$ then $x = 9$ or $x = -9$ Which equation shows why this statement is correct?

A. $9^2 = (-9^2)$

B. $\sqrt{81} = \sqrt{-81}$

C. $(9)(-9) = (9)(-9)$

D. $\frac{-81}{9} = \frac{81}{-9}$

119. What is the value of $\sqrt{16}$?

A. 4

B. 8

C. 16

D. 32

120. Which expression has a value of 10?

A. $\sqrt[3]{13}$

B. $\sqrt{5}$

C. $\sqrt[3]{30}$

D. $\sqrt{100}$

121. What is the value of z when $z^3 = \frac{64}{27}$?

A. $\frac{\sqrt[3]{64}}{27}$

B. $\sqrt[3]{\frac{64}{27}}$

C. $\frac{64}{27(3)}$

D. $\frac{64^3}{27^3}$

122. If $x^2 = 7$ what is a value of x ?

A. $\sqrt{7}$

- B. 3.5
- C. $\sqrt{49}$
- D. 14

123. Which statement is true?

- A. $\sqrt{2}$ is rational because it can be written as an integer.
- B. $\sqrt{2}$ is rational because it can be written as $\frac{a}{b}$ or $\frac{-a}{b}$ where a and b are integers and $b \neq 0$.
- C. $\sqrt{2}$ is irrational because it cannot be written as a terminating decimal.
- D. $\sqrt{2}$ is irrational because it cannot be written as $\frac{a}{b}$ where a and b are integers and $b \neq 0$.

124. What is the solution to $x^2 = 16$?

- A. $x = -4$ or $x = 4$
- B. $x = -8$ or $x = 8$
- C. $x = -32$ or $x = 32$
- D. $x = -256$ or $x = 256$

125. What is the value of x in the equation $x = \sqrt[3]{27}$?

A. $x = 3$

B. $x = 9$

C. $x \pm 3$

D. $x \pm 9$

126. Which expression shows the value of x in the equation $x^2 = 169$?

A. $\pm\sqrt{13}$

B. $\pm\frac{13}{2}$

C. $\pm\sqrt{169}$

D. $\pm\frac{169}{2}$

127. Tim bought 128 sandbags to completely fill a cube-shaped sandbox. Each bag fills a cubic foot in the sandbox. What is the length, in feet, of one of the sides of the sandbox?

A. $\sqrt{128}$

B. $\sqrt[3]{128}$

C. 128^2

D. 128^3

128. What is the value of x in the equation $512x^3 = 8$?

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

B. $\frac{1}{4}$

C. $\sqrt[3]{4}$

D. 4

129. Which expression has a value that is irrational?

A. 2^2

B. $\sqrt{4}$

C. $2\sqrt{2}$

D. $(\sqrt{2})^2$

130. What is the value of the expression $\sqrt[3]{216}$?

A. 72

B. 27

C. 8

D. 6

131. Which expression represents the value of x in the equation below?

$$x^2 = 25$$

A. $\sqrt{5}$

B. $\sqrt{25}$

C. 5^2

D. 25^2

132. Which expression could represent the value of x in the equation below?

$$x^3 = 2$$

A. $\frac{2}{3}$

B. 2^3

C. $\sqrt[3]{2}$

D. $2 \cdot 3$

133. The volume of a cube is 125 cubic centimeters. How many centimeters long is each edge of the cube?

A. 5 centimeters

B. 11 centimeters

C. 15 centimeters

D. 42 centimeters

134. An electric company charges its residential customers \$0.13 per kWh with a fixed monthly charge of \$16. If a customer uses x kWh of electricity in a month, which of these functions represents the total monthly bill?

- A. $g(x) = 0.13x$
- B. $g(x) = 16x$
- C. $g(x) = 0.13x + 16$
- D. $g(x) = 16x + 0.13$

135. The table below shows the value of Henry's car for each of the first 3 years after it is purchased. The values form a geometric sequence.

Year	Value (in dollars)
1	16,000
2	12,800
3	10,240

What will be the approximate value of the car in the 10th year?

- A. \$2,150
- B. \$2,680
- C. \$5,240
- D. \$6,550