

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

A. 32

B. 2^3

C. 4^2

D. $4\sqrt{16}$

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

A. $\sqrt{100}$

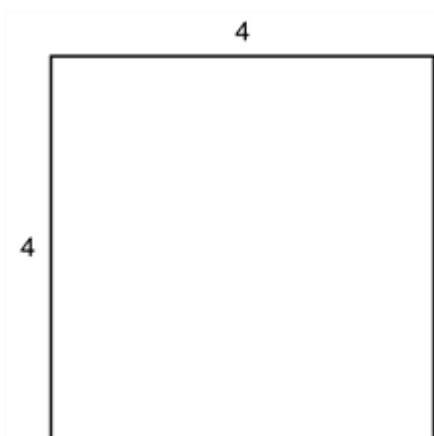
B. $\sqrt{50}$

C. $\sqrt{25}$

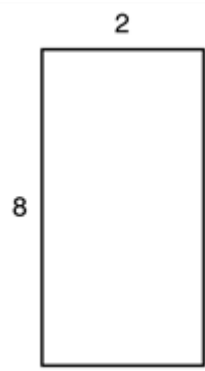
D. $\sqrt{5}$

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

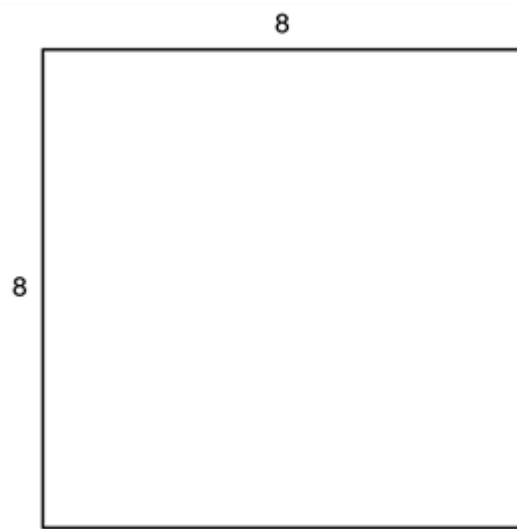
A.



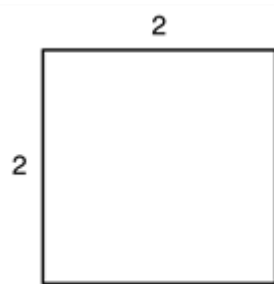
B.



C.

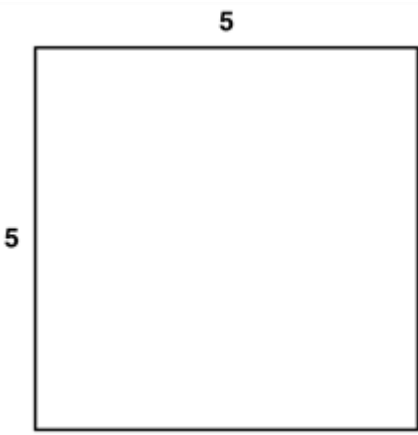


D.

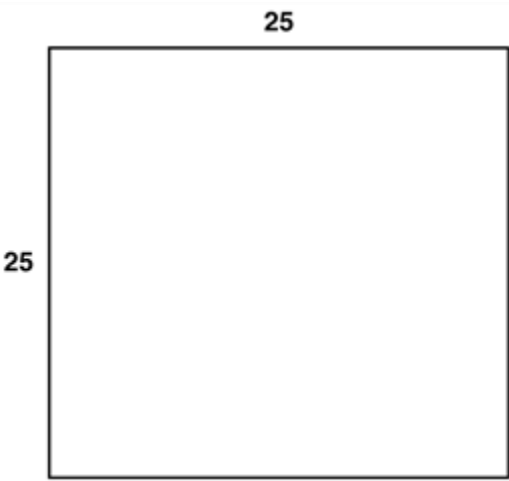


4. Which model BEST represents $\sqrt{625}$?

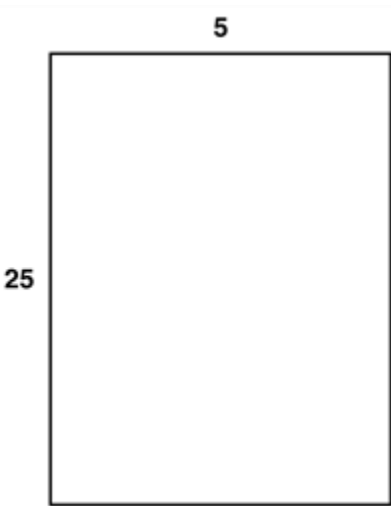
A.



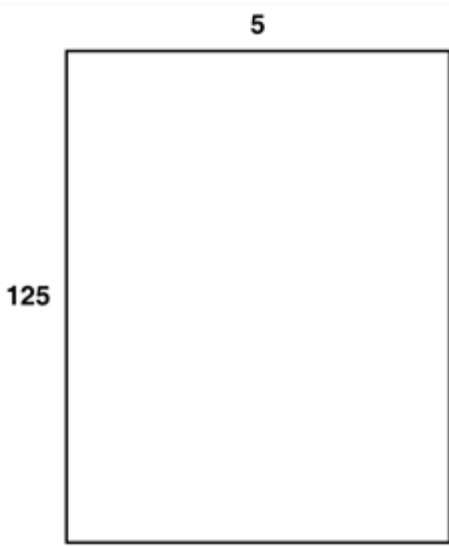
B.



C.

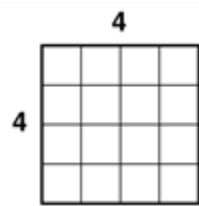


D.

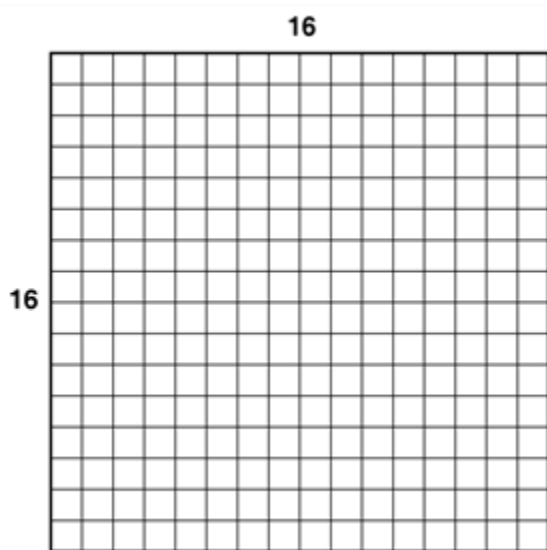


5. Which model BEST represents $\sqrt{256}$?

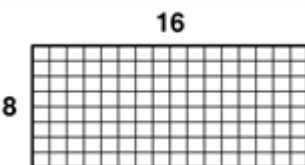
A.



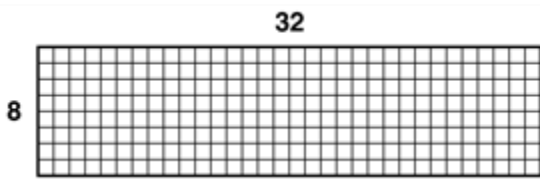
B.



C.

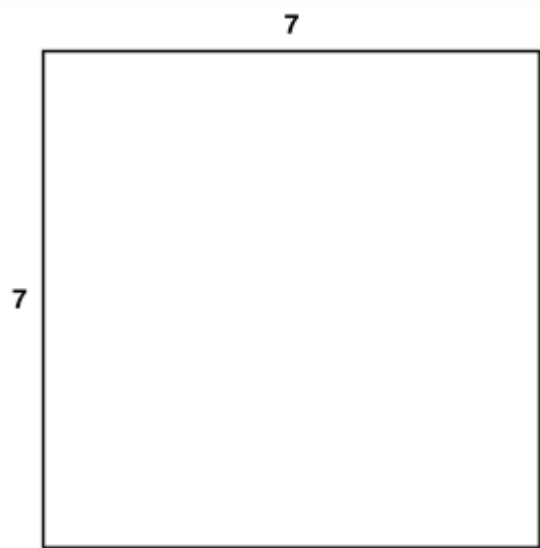


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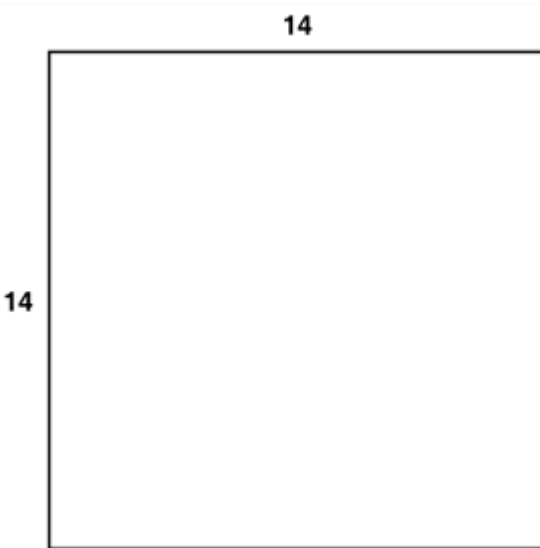


6. Which model BEST represents $\sqrt{196}$?

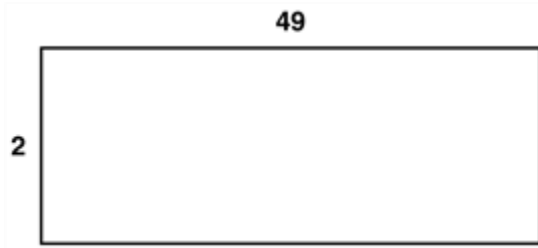
A.



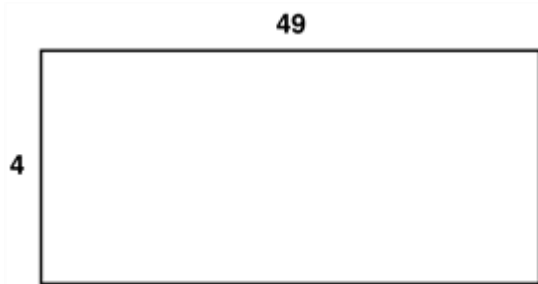
B.



C.

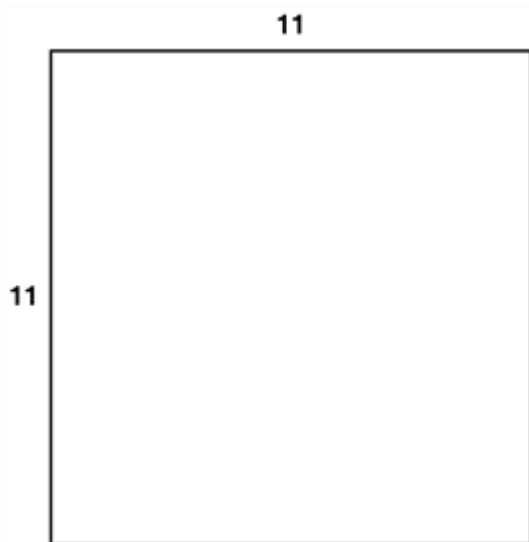


D.

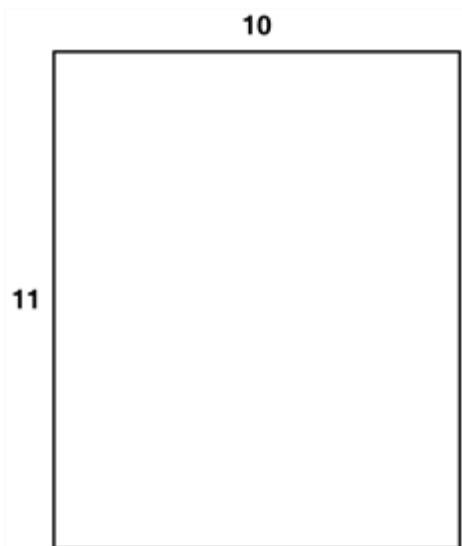


7. Aashi needs to solve $\sqrt{121}$ on her math homework. Which one of these models would be BEST for her to use?

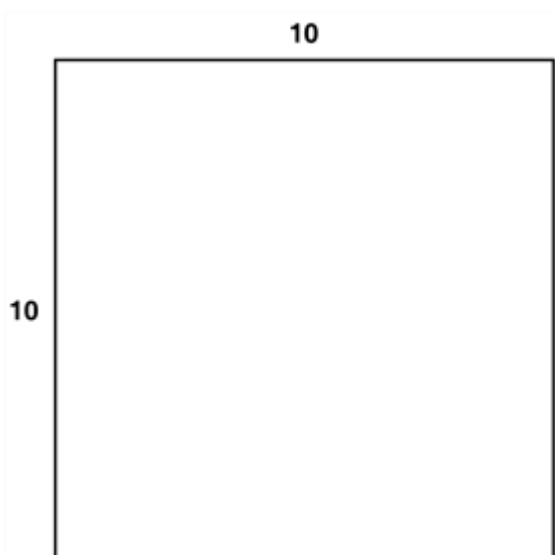
A.



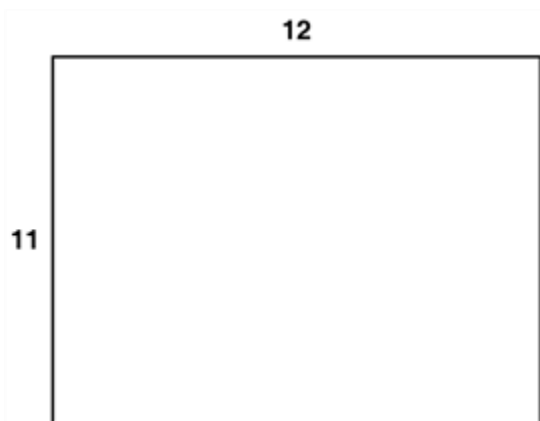
B.



C.



D.



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

9. Which represents the solution to $x^3 = 512$?

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

B. $x = 512^3$

C. $x = 512^2$

D. $x = \sqrt{512}$

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

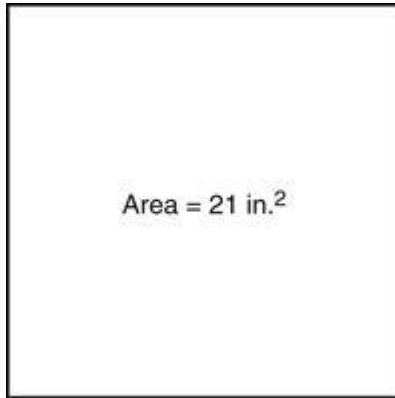
A. The perimeter of a square with an area of 100 square units

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

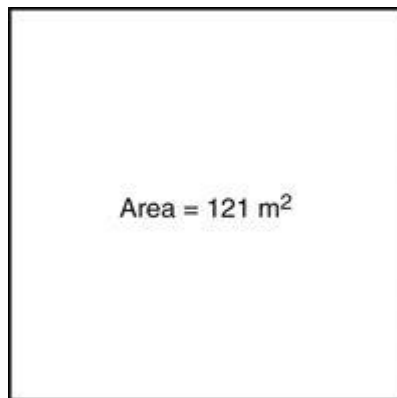
11. The figure below represents a square with an area of 21 square inches.



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. $\sqrt{21}$

12. 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. $\sqrt{121}$

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

A. $144^2 = 12$

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

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

D. $\sqrt{144} = 12$

14. 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.

15. 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.

16. 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. $196^2 = 14$

17. 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. $\sqrt{32}$

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

A. $\sqrt{8} = 64$

B. $\sqrt{64} = 8$

C. $81 = 8^2$

D. $64^2 = 8$

19. 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. $\sqrt{144}$

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

A. 2

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

C. 5

D. 24

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

A. 3000

B. 100

C. 30

D. 10

22. Which equation has an irrational solution?

A. $x^2 = 2$

B. $x^2 = 81$

C. $x^3 = 27$

D. $x^3 = 64$

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

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

A. 4

B. 8

C. 16

D. 32

25. Which expression has a value of 10?

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

B. $\sqrt{5}$

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

D. $\sqrt{100}$

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

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

A. $\sqrt{7}$

B. 3.5

C. $\sqrt{49}$

D. 14

28. 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 $b \neq 0$.

29. 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 $x = 256$

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

A. $x = 3$

B. $x = 9$

C. $x \pm 3$

D. $x \pm 9$

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

32. 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

33. 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

34. Which expression has a value that is irrational?

A. 2^2

B. $\sqrt{4}$

C. $2\sqrt{2}$

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

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

A. 72

B. 27

C. 8

D. 6

36. 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

37. 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. $2 \cdot 3$

38. 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

39. 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. $g(x) = 16x + 0.13$

40. 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