

Pre-Algebra, Unit 9 Practice Test: Square & Cube Roots; Irrational Numbers

Name:

Date:

1. Define the following terms and give an example of each:

a) *perfect square*

b) *cube root*

2. Define the following terms and give an example of each:

a) *rational number*

b) *irrational number*

c) *real number*

3. Simplify $\sqrt{121}$.

4. (SBAC) Simplify $\sqrt[3]{216}$.

5. (SBAC) Simplify $\sqrt{200}$.

6. (SBAC) Select ALL possible values for x in the equation $x^2 = 500$:

a) $10\sqrt{5}$

d) $\sqrt{500}$

g) $-50\sqrt{10}$

b) $10\sqrt{50}$

e) $-10\sqrt{5}$

h) $-\sqrt{500}$

c) $50\sqrt{10}$

f) $-10\sqrt{50}$

7. Which of the following numbers is a perfect square?

A. 99

B. 125

C. 144

D. 222



8. (SBAC) $\sqrt{147}$ is between which two whole numbers below?

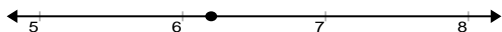
- A. 146 and 148
- B. 73 and 74
- C. 13 and 14
- D. 12 and 13

9. (SE) Which of the following numbers are rational?

- I. -4
- II. $\frac{1}{3}$
- III. 2π
- IV. $\sqrt{7}$

- A. I only
- B. I and II
- C. III and IV
- D. IV only

10. (SBAC) Which value most closely approximates the point shown on the number line?



- A. $\sqrt{6}$
- B. $\sqrt{13}$
- C. $\sqrt{39}$
- D. $\sqrt{48}$

11. (SBAC) The range between which two numbers below includes the value of $\sqrt{4+9+20}$?

- A. 5.6 and 5.8
- B. 6.7 and 6.8
- C. 14.8 and 15.0
- D. 16.4 and 16.6

12. (SBAC) Select ALL possible values for x in the equation $x^3 = 128$

- A. $4\sqrt[3]{2}$
- B. $\sqrt[3]{128}$
- C. $8\sqrt[3]{2}$
- D. $64\sqrt[3]{2}$

13. (SBAC) Solve $64x^3 = 27$.

- A. $x = \frac{27}{64}$
- B. $x = \frac{64}{27}$
- C. $x = \frac{3}{4}$
- D. $x = \frac{4}{3}$

14. (SBAC) A square with side length s has an area of 361 square centimeters. This relationship is expressed by the equation $s^2 = 361$. What is the side length of the square in centimeters?

- A. $x = 7$
- B. $x = 17$
- C. $x = 18.5$
- D. $x = 19$

15. (SE/SBAC) Which chain of inequalities below correctly orders the numbers from least to greatest?

- A. $-2^3 < -\sqrt{66} < -3 < \frac{1}{3} < \frac{\sqrt{9}}{3}$
- B. $-2^3 < -\sqrt{66} < -3 < \frac{\sqrt{9}}{3} < \frac{1}{3}$
- C. $-\sqrt{66} < -2^3 < -3 < \frac{1}{3} < \frac{\sqrt{9}}{3}$
- D. $-\sqrt{66} < -2^3 < -3 < \frac{\sqrt{9}}{3} < \frac{1}{3}$

Long term memory review:

20. Solve the system.

$$\begin{aligned}x - y &= 3 \\x + 5y &= 39\end{aligned}$$

