Name:

## Date:

- 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.  $2\pi$
  - 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?



- 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



Pre-Algebra Practice Test

Unit 9: Square and Cube Roots; Irrational Numbers Revised 2015 - NVACS

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- 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.  $x = \frac{27}{64}$

A. 
$$x = \frac{-64}{-64}$$
  
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 = 7B. x = 17C. 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.  $-\sqrt{66} < -2^{3} < -3 < \frac{\sqrt{9}}{3} < \frac{1}{3}$ 

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- 16. Solve the equation:  $81 = x^2$
- 17. (SE/SBAC) Determine whether each of the numbers in the first column below is rational, irrational, and/or real. Indicate your answers by placing a ✓ to the right of the number under the categories that apply.

Number	Rational	Irrational	Real
3			
7			
13			
$\overline{\sqrt{4}}$			
$\sqrt{20}$			
-14			

18. (SBAC) Classify the numbers in the box as perfect squares and/or perfect cubes. To classify a number, place the number in the appropriate column in the chart. (Numbers that are neither perfect squares nor perfect cubes should not be placed in the chart.)

1	16	27	44	64	200	225	

Perfect squares but NOT perfect cubes	Both perfect squares and perfect cubes	Perfect cubes but NOT perfect squares

19. (SBAC) Approximate the value of  $\sqrt{115}$ . Explain your thinking.





## Long term memory review:

20. Solve the system.  $\begin{aligned} x - y &= 3\\ x + 5y &= 39 \end{aligned}$ 

