

Name: \_\_\_\_\_

**Key**

Class: \_\_\_\_\_

Date: \_\_\_\_\_

ID: A

## Real Numbers Practice Test

NO CALCULATOR

**Math 8****Monday (9/28) & Tuesday (9/29)**  
**Test Review**

Short Answer

Periods 1, 4, &amp; 7

1. Evaluate the expression for the given value of
- $x$
- .

$x + 2x^{-4}(2x) \quad \text{when } x = 8$

$$x + 4x^{-3} = 8 + \frac{4}{8^3} = 8 + \frac{1}{128} = \boxed{8\frac{1}{128}}$$

2. Write
- 0.000000474
- in scientific notation.

$$\boxed{4.74 \times 10^{-7}}$$

3. Simplify
- $11^{-3}$
- .

$$\boxed{\frac{1}{11^3}}$$

4. Find the length of the side of a square with an area of 36.

$$\boxed{\frac{A=36}{s}} \Rightarrow s = \sqrt{36} = 6$$

$$\sqrt{36} = \boxed{6 \text{ units}}$$

5. Suzanne wants to put a fence around her square garden. If the garden covers an area of 49 ft
- <sup>2</sup>
- , how many feet of fencing does she need?

$$\boxed{49 \text{ ft}^2}$$

$$\sqrt{49} = 7$$

$$\text{Perimeter} = 4(7) = \boxed{28 \text{ feet}}$$

6. a. Decide whether each of the following statements is true or false.

Problem	True or False
1. $25^{100} \times 25^{10} = 25^{1000}$	<b>False</b> ; should be $25^{100+10} = 25^{110}$
2. $4^9 \times 5^9 = 20^9$	<b>True</b>
3. $(3^6)^8 = 3^{48}$	<b>True</b>
4. $\frac{10^6}{10^2} = 10^3$	<b>False</b> ; should be $10^{6-2} = 10^4$

Write the expression using a single exponent.

7.  $7^5 \cdot 7^6 = \boxed{7^{11}}$

8.  $\frac{144^{14}}{144^2} = \boxed{144^{10}}$

9.  $(19^8)^6 = \boxed{19^{48}}$

**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

**B**

1. Estimate the value of  $\sqrt{56}$  to the nearest whole number.

- a. 9
- b. 7
- c. 8
- d. 6

*7 away 8 away*  
 $\sqrt{49} < \sqrt{56} < \sqrt{64}$   
 $7 < x < 8$   
 closer to 7

**A**

2. Without using a calculator, choose the number that could be a representation of  $\sqrt{28}$  on a calculator.

- a. 5.2915026
- b. 4.8989794
- c. 5.9160797
- d. 4.1231056

Simplify.

$\sqrt{25} < \sqrt{28} < \sqrt{36}$   
 $5 < x < 6$

**C**

3.  $\sqrt[3]{1000}$ .

- a. 1000
- b. 3,000
- c. 10
- d.  $333.\bar{3}$

$\sqrt[3]{1000} = 10 \cdot 10 \cdot 10 = 10$

**B**

4. Classify 8 as a perfect square, a perfect cube, both, or neither.

- a. perfect square
- b. perfect cube
- c. both
- d. neither

$\sqrt{8} = \text{irrational}$   
 $\sqrt[3]{8} = 2, \text{ since } 2 \cdot 2 \cdot 2 = 8$

**A**

5. Which of these is equivalent to  $x^2 = 48$ ?

- a.  $\pm\sqrt{48}$
- b.  $\pm 24$
- c.  $\sqrt{48}$
- d. 24

**A**

6. Simplify  $10^0$ .

- a. 1
- b. 10
- c.  $\frac{1}{10}$
- d. 0

**C**

7.  $x^2 = 144$

- a.  $x = \pm 11$
- b.  $x = \pm 72$
- c.  $x = \pm 12$
- d.  $x = 12$

$x^2 = 144$   
 $x = \pm\sqrt{144}$   
 $x = \pm 12$

**C**

8.  $x^3 = -216$

- a.  $x = -72$
- b.  $x = \pm 72$
- c.  $x = -6$
- d.  $x = \pm 6$

$\sqrt[3]{-216} = -6, \text{ since } -6 \cdot -6 \cdot -6 = -216$

**C**

9. Which number is irrational?

- a.  $\sqrt{81} = 9$
- b.  $\sqrt{169} = 13$
- c.  $\sqrt{156} = 12.4\dots$  Irrational
- d.  $\sqrt{144} = 12$

**B**

10.  $\sqrt{84}$

- a. rational
- b. irrational

**A**

1.  $\frac{9}{10}$

Ratio of an Integer to an integer is a Rational #.

a. rational

b. irrational

**D**

2. Write  $3.15 \times 10^{-5}$  in standard notation.

- a. 0.00315
- b. 0.00000315

- c. 0.000315
- d. 0.0000315

3.15

.00003.15

**C**

13. Write 5,600 in scientific notation.

$5.6 \times 10^3$

a.  $56 \times 10^2$

b.  $0.56 \times 10^3$

c.  $5.6 \times 10^3$

d.  $56 \times 10$

**B**

14. Write 49,600 in scientific notation.

a.  $4.96 \times 10^3$

b.  $4.96 \times 10^4$

$4.96 \times 10^4$

c.  $4.96 \times 10^6$

d.  $4.96 \times 10^5$

**D**

15. Write  $8.17 \times 10^4$  in standard notation.

a. 8,170,000

b. 8,170

c. 817,000

d. 81,700

$8,1700 = 81,700$

**A**

16. A cube-shaped box has a volume of 125 cubic inches. If the box is packed full of cubes with edge lengths of 1 inch, how many cubes can fit along one side of the box?

- a. 5 cubes
- b. 25 cubes
- c. 15 cubes
- d. 125 cubes



Volume =  $125 \text{ in}^3$   
 $\sqrt[3]{125} = 5 \text{ in}$

Multiple Choice

1. Which decimal is terminating?

A. 0.1212...

B. 0.4444...

C. 0.565656....

D. 0.787

**Letter D**

PERFECT SQUARES:

1 4 9 16 25 36 49 64 81 100 121 144 169 196 225

PERFECT CUBES:

1 8 27 64 125 216 343 512 729 1000