

Keystone Review – Real Number System

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

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

1. The value of  $5^{-2}$  is
- A.  $-\frac{1}{25}$     B.  $\frac{1}{25}$     C.  $-10$     D.  $-25$

2. Evaluate:  $-10x^0$

3. Which expression is equivalent to  $x^{-1} \cdot y^2$ ?

- A.  $xy^2$     B.  $\frac{y^2}{x}$     C.  $\frac{x}{y^2}$     D.  $xy^{-2}$

4. Which expression is equivalent to  $(3x^2)^3$ ?

- A.  $9x^5$     B.  $9x^6$     C.  $27x^5$     D.  $27x^6$

5. The expression  $\frac{(10w^3)^2}{5w}$  is equivalent to

- A.  $2w^5$     B.  $2w^8$     C.  $20w^5$     D.  $20w^8$

6. If 0.000023 is expressed in the form  $2.3 \times 10^n$ , what is the value of  $n$ ?

7. Which expression represents the number 0.00017 written in scientific notation?

- A.  $1.7 \times 10^{-4}$     B.  $1.7 \times 10^4$   
 C.  $1.7 \times 10^{-3}$     D.  $1.7 \times 10^3$

8. The expression  $15 - 3[2 + 6(-3)]$  simplifies to

- A.  $-45$     B.  $-33$     C.  $63$     D.  $192$

9. Debbie solved the linear equation  $3(x + 4) - 2 = 16$  as follows:

[Line 1]     $3(x + 4) - 2 = 16$

[Line 2]     $3(x + 4) = 18$

[Line 3]     $3x + 4 = 18$

[Line 4]     $3x = 14$

[Line 5]     $x = 4\frac{2}{3}$

She made an error between lines

- A. 1 and 2    B. 2 and 3  
 C. 3 and 4    D. 4 and 5

10. Which represents an irrational number?

- A. 0    B.  $\frac{3}{4}$     C.  $\sqrt{3}$     D.  $\sqrt{4}$

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11. Which does not represent a rational number?
- A.  $\frac{3}{2}$     B.  $\sqrt{7}$     C.  $\sqrt{16}$     D.  $0.\overline{29}$
12. If  $x = 13$ , then the value of  $\sqrt{x-5}$  is
- A. a rational number  
B. an irrational number  
C. undefined  
D. an integer
13. The expression  $\sqrt{500}$  is equivalent to
- A.  $50\sqrt{10}$                       B.  $5\sqrt{10}$   
C.  $10\sqrt{5}$                         D.  $10\sqrt{50}$
14. The expression  $3\sqrt{27} - \sqrt{12}$  is equivalent to
- A.  $7\sqrt{3}$     B.  $23\sqrt{3}$     C.  $15\sqrt{3}$     D.  $4\sqrt{3}$
15. If the sum of  $\sqrt{50}$  and  $x\sqrt{2}$  is  $8\sqrt{2}$ , find the value of  $x$ .
16. The sum of  $\sqrt{18}$  and  $6\sqrt{2}$  is
- A.  $7\sqrt{20}$     B.  $9\sqrt{2}$     C.  $15\sqrt{2}$     D. 18
17. The statement “ $x$  is divisible by 3 and  $x$  is greater than 3” is true for which whole number?
- A. 5            B. 6            C. 3            D. 4
18. Which statement is always true if the domain of the variables is the set of positive integers?
- A.  $\sqrt{a^2 + b^2} = a + b$     B.  $ab = b$   
C.  $\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$     D.  $(a+b)^2 = a^2 + b^2$
19. The statement “ $n$  is even and a perfect square” is true when  $n$  equals
- A. 1            B. 18            C. 25            D. 4
20. Under which operation is the set of positive rational numbers *not* closed?
- A. addition                      B. subtraction  
C. multiplication                D. division
21. If  $a$  and  $b$  are any two whole numbers, which statement is always true?
- A.  $2a + b = 2b + a$     B.  $a + b = b + a$   
C.  $a^b = b^a$                       D.  $a \div b = b \div a$

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22. Which set is not closed under addition?
- A. natural numbers      B. even integer  
C. whole numbers      D. odd integers

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1.  
Answer:      B
2.  
Answer:      -10
3.  
Answer:      B
4.  
Answer:      D
5.  
Answer:      C
6.  
Answer:      -5
7.  
Answer:      A
8.  
Answer:      C
9.  
Answer:      B
10.  
Answer:      C
11.  
Answer:      B
12.  
Answer:      B
13.  
Answer:      C
14.  
Answer:      A
15.  
Answer:      3
16.  
Answer:      B
17.  
Answer:      B
18.  
Answer:      C
19.  
Answer:      D
20.  
Answer:      B

21.  
Answer:      B
22.  
Answer:      D