

Keystone Review – Properties of Real Numbers

Name: _____

Date: _____

1. Which sentence is an example of the distributive property?

- A. $ab = ba$ B. $a(bc) = (ab)c$
 C. $a(b + c) = ab + ac$ D. $a \cdot 1 = a$

2. The sentence $3 + (5 + 2) = (5 + 2) + 3$ illustrates

- A. the commutative property of addition
 B. the associative property of addition
 C. the distributive property of multiplication over addition
 D. the additive identity element

3. Which sentence illustrates the commutative property for addition?

- A. $(a + b) + c = a + (b + c)$
 B. $a(b + c) = ab + ac$
 C. $a + 0 = a$
 D. $a + b = b + a$

4. Which property is illustrated by the equation $-8 + 0 = -8$?

- A. additive inverse
 B. additive identity
 C. commutative property
 D. distributive property

5. Which is an illustration of the associative property?

- A. $x \oplus y = y \oplus x$
 B. $x \oplus (y \times z) = (x \oplus y) \times (x \oplus z)$
 C. $x \oplus (y \oplus z) = (y \oplus z) \oplus x$
 D. $x \oplus (y \oplus z) = (x \oplus y) \oplus z$

6. In the step-by-step simplification of the expression below, which property is not used?

$$\begin{aligned} &3(1 + x) \\ &3(x + 1) \\ &3 \cdot x + 3 \cdot 1 \\ &3x + 3 \end{aligned}$$

- A. associative B. commutative
 C. distributive D. identity

7. In the solution of this problem, which property of real numbers justifies statement 5?

Statements	Reasons
1. $3x = 6$	1. Given
2. $\frac{1}{3}(3x) = \frac{1}{3}(6)$	2. Multiplication axiom
3. $(\frac{1}{3} \cdot 3)x = 2$	3. Associative property
4. $1 \cdot x = 2$	4. Multiplicative inverse
5. $x = 2$	5.

- A. Closure B. Identity
 C. Commutative D. Inverse

Keystone Review – Properties of Real Numbers

8. The additive inverse of $a - b$ is

- A. $a + b$ B. $-a + b$
C. $-a - b$ D. $\frac{1}{a - b}$

9. Which is the additive inverse of $-\frac{a}{3}$?

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

10. Which property of real numbers is illustrated by the equation $-\sqrt{3} + \sqrt{3} = 0$?

- A. additive identity
B. commutative property of addition
C. associative property of addition
D. additive inverse

11. What is the multiplicative inverse of $\frac{1}{5}$?

12. The product of $-\frac{1}{a}$, $a \neq 0$, and its reciprocal is

- A. 1 B. -1 C. $-\frac{1}{a^2}$ D. 0

13. Which equation illustrates the multiplicative inverse property?

- A. $b \cdot 0 = 0$ B. $b + (-b) = 0$
C. $b + 0 = b$ D. $b \cdot \frac{1}{b} = 1$

14. The reciprocal of the expression $\frac{2}{x} + \frac{3}{1}$ is

- A. $\frac{2 + 3x}{x}$ B. $\frac{x}{2 + 3x}$
C. $2x + 3$ D. $2 + 3x$

15. Which property is illustrated by the equation $\frac{3}{2}x + 0 = \frac{3}{2}x$?

- A. commutative property of addition
B. distributive property
C. additive inverse property
D. additive identity property

- | | |
|---------|---|
| 1. | |
| Answer: | C |
| 2. | |
| Answer: | A |
| 3. | |
| Answer: | D |
| 4. | |
| Answer: | B |
| 5. | |
| Answer: | D |
| 6. | |
| Answer: | A |
| 7. | |
| Answer: | B |
| 8. | |
| Answer: | B |
| 9. | |
| Answer: | A |
| 10. | |
| Answer: | D |
| 11. | |
| Answer: | 5 |
| 12. | |
| Answer: | A |
| 13. | |
| Answer: | D |
| 14. | |
| Answer: | B |
| 15. | |
| Answer: | D |