

CYU 1.8 Properties of Real Numbers

Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Commutative Property	1 - 4	9 - 15	36 - 44
Associative Property	5 - 8	9 - 15	36 - 44
Distributive Property	16 - 22	23 - 27	28 - 35

Use a commutative property to complete each statement.

1. $x + 16 = \underline{16 + x}$

3. $xy = \underline{yx}$

2. $-4y = \underline{y(-4)}$

4. $2x + 13 = \underline{13 + 2x}$

Use an associative property to complete each statement.

5. $(xy) \cdot z = \underline{x(yz)}$

7. $4 \cdot (ab) = \underline{(4a)(b)}$

6. $2 + (a + b) = \underline{(2+a)+b}$

8. $(a + b) + c = \underline{a+(b+c)}$

Use the commutative and associative properties to simplify each expression.

9. $8 + (9 + b) = \underline{17 + b}$

13. $-9(8x) = \underline{-72x}$

10. $4(6y) = \underline{24y}$

14. $\frac{3}{4}(\frac{4}{3}s) = \underline{s}$

11. $\frac{1}{5}(5y) = \underline{y}$

15. $\frac{2}{3} + (\frac{4}{3} + x) = \underline{2 + x}$

12. $(13 + a) + 13 = \underline{26 + a}$

Use the distributive property to write each expression without parentheses. Then simplify the results.

16. $4(x + y) = \underline{4x + 4y}$

18. $2(3x + 5) = \underline{6x + 10}$

17. $9(x - 6) = \underline{9x - 54}$

19. $7(4x - 3) = \underline{28x - 21}$

$$20. 3(6 + x) \quad 18 + 3x$$

$$21. -2(y - z) \quad -2y + 2z$$

$$22. -7(3y + 5) \quad -21y - 35$$

$$23. 5(x + 4m + 2) \quad 5x + 20m + 10$$

$$24. -4(1 - 2m + n) \quad -4 + 8m - 4n$$

$$25. -(5x + 2) \quad -5x - 2$$

$$26. -(r - 3 - 7p) \quad -r + 3 + 7p$$

$$27. \frac{1}{2}(6x + 8) \quad 3x + 4$$

$$28. -9(4x + 8) + 2 \quad -36x - 72 + 2$$

$$29. 3(2r + 5) - 7$$

$$6r + 15 - 7 = 6r + 8$$

$$30. -9(4x + 8) + 2$$

$$-36x - 72 + 2 = -36x - 70$$

$$31. -4(4x + 5) - 5$$

$$-16x - 20 - 5 = -16x - 25$$

Use the distributive property to write each sum as a product.

$$32. 4 \cdot 1 + 4 \cdot y \quad 4(1 + y)$$

$$34. (-1) \cdot 5 + (-1) \cdot x \quad -1(5 + x)$$

$$33. 11x + 11y \quad 11(x + y)$$

$$35. 30a + 30b \quad 30(a + b)$$

Name the properties illustrated by each true statement.

$$36. 3 \cdot 5 = 5 \cdot 3$$

commutative POM

$$37. 4(3 + 8) = 4 \cdot 3 + 4 \cdot 8$$

distributive property

$$38. 2 + (x + 5) = (2 + x) + 5$$

associative POA

$$39. 9(3 + 7) = 9 \cdot 3 + 9 \cdot 7$$

distributive Property

$$40. (4 \cdot y) \cdot 9 = 4 \cdot (y \cdot 9)$$

associative POM

$$41. 6 \cdot \frac{1}{6} = 1$$

multiplicative inverse

$$42. 0 + 6 = 6$$

Identity for addition

$$43. -4(y + 7) = -4 \cdot y + (-4) \cdot 7$$

distributive Property

$$44. -4 \cdot (8 \cdot 3) = (8 \cdot 4) \cdot 3$$

Commutative & associative POM

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

