

1-7 Distributive Property

To solve problems in mathematics, it is often useful to rewrite expressions in simpler forms. The Distributive Property is another property of real numbers that helps you simplify expressions.

$$a(b+c) = ab+ac \qquad (b+c)a = ba+ca$$

$$a(b-c) = ab-ac \qquad (b-c)a = ba-ca$$

Directions: Simplify the expression by combining like terms. If you start with a fraction, end with a fraction. If you start with a decimal, end with a decimal.

Example 1: $6y-8+2y+5$

2. $9-5a+2+a$

3. $6r+2r+4-5r+1$

4. $3m+2n+5m-10+7n$

5. $7+5w-4+3w+2$

6. $5-2.1s+17s$

7. $\frac{1}{2}h+5+\frac{5}{2}h-3$

8. $\frac{2}{3}+4n-9-2n$

Simplify the expression by using the distributive property.

9. $4(x+3)$

10. $5(m+5)$

11. $-8(p-3)$

12. $(2r-3)(2)$

13. $6.5(v+1)$

14. $-2(3+x)$

15. $\frac{1}{2}\left(\frac{1}{2}m-4\right)$

16. $\frac{2}{3}(6n-9)$

(1) $8y-3$, (2) $-4a+11$, (3) $3r+5$, (4) $8m+9n-10$, (5) $8s+5$, (6) $14.9s+5$, (7) $3h+2$, (8) $2n-\frac{25}{3}$,

(9) $4x+12$, (10) $5m+25$, (11) $-8p+24$, (12) $4r-6$, (13) $6.5v+6.5$, (14) $-2x-6$, (15) $\frac{1}{4}m-2$, (16) $4n-6$

Simplify the expression using distributive property and combining like terms.

17. $6y + 2(y + 1)$

18. $2(4a - 1) + a$

19. $6r - 2(r + 4)$

20. $3(m + 5) - 10$

21. $7.2(w - 5) + 3w$

22. $(s - 3)(2) + 17s$

23. $\frac{1}{3}(2m + 6) - 10$

24. $\frac{1}{2} + 3\left(2x + \frac{1}{6}\right)$

Mr. Fuller tried to simplify the following but made a really common mistake in each problem. Help a math teacher out by first identifying the mistake, then show the correct solution.

25. $8 + 2(3p + 1)$
 $= 10(3p + 1)$
 $= 30p + 10$

26. $3d - 2(d - 4)$
 $= 3d - 2d - 8$
 $= 1d - 8$

(17) $8y + 2$, (18) $9a - 2$, (19) $4r - 8$, (20) $3m + 5$, (21) $10.2w - 36$, (22) $19s - 6$, (23) $\frac{2}{3}m - 8$, (24) $6x + 1$, (25) $6p + 10$, (26) $d + 8$