

3.7 - Distributive Property

MPM1D

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SOLUTIONS

1. Which expression shows $-3(x + 5)$ expanded?

A) $-3x + 15$

B) $-3x + 5$

C) $-3x - 8$

D) $-3x - 15$

2. Expand using the distributive property

a) $4(x + 2)$

$$= 4x + 8$$

b) $5(k - 3)$

$$= 5k - 15$$

c) $-2(y + 1)$

$$= -2y - 2$$

d) $-8(2 - d)$

$$= -16 + 8d$$

e) $5(2t - 3)$

$$= 10t - 15$$

f) $-(4y - 5)$

$$= -4y + 5$$

3. Expand

a) $y(y - 4)$

$$= y^2 - 4y$$

b) $r(r + 5)$

$$= r^2 + 5r$$

c) $x(2x - 5)$

$$= 2x^2 - 5x$$

d) $q(-4q + 8)$

$$= -4q^2 + 8q$$

e) $z(-3z + 2)$

$$= -3z^2 + 2z$$

f) $m(-m - 5)$

$$= -m^2 - 5m$$

4. Expand

a) $2b(3b - 5)$

$$= 6b^2 - 10b$$

b) $-4w(3w - 1)$

$$= -12w^2 + 4w$$

c) $2x(-4x + 3)$

$$= -8x^2 + 6x$$

d) $(4k + 7)(-3k)$

$$= -12k^2 - 21k$$

5. Expand using distributive property

a) $(n - 5) \times 4$

$$= 4n - 20$$

b) $(7m + 6)(-4)$

$$= -28m - 24$$

c) $(7 + c)(3c)$

$$= 21c + 3c^2$$

d) $(4k + 7)(-3k)$

$$= -12k^2 - 21k$$

6. Expand

a) $2(a^2 + 5a + 3)$

$$= 2a^2 + 10a + 6$$

b) $4x(x^2 + x - 3)$

$$= 4x^3 + 4x^2 - 12x$$

c) $-5y(3y^2 - 7y - 2)$

$$= -15y^3 + 35y^2 + 10y$$

d) $(2y^2 + 3y - 1)(4y)$

$$= 8y^3 + 12y^2 - 4y$$

7. Expand and Simplify

a) $3(x + 2) + 4(x - 5)$

$$= 3x + 6 + 4x - 20$$

$$= 7x - 14$$

b) $-4(y + 1) + 2(2y - 3)$

$$= -4y - 4 + 4y - 6$$

$$= -10$$

c) $2(u + v) - 3(u - v)$

$$= 2u + 2v - 3u + 3v$$

$$= -u + 5v$$

d) $4(w - 2) - 2(2w + 7)$

$$= 4w - 8 - 4w - 14$$

$$= -22$$

8. Expand and Simplify

a) $3[x + 2(x - 4)]$

$$= 3(x + 2x - 8)$$

$$= 3(3x - 8)$$

$$= 9x - 24$$

b) $3[2k - (2 + k)]$

$$= 3(2k - 2 - k)$$

$$= 3(k - 2)$$

$$= 3k - 6$$

c) $2[-h - 2(h - 1)]$

$$= 2(-h - 2h + 2)$$

$$= 2(-3h + 2)$$

$$= -6h + 4$$

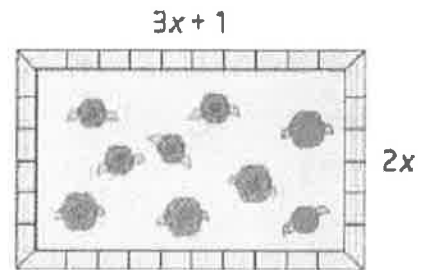
9. A garden has dimensions as shown:

a) Write a simplified expression to represent the perimeter.

$$P = 2(3x + 1) + 2(2x)$$

$$= 6x + 2 + 4x$$

$$= 10x + 2$$



b) Write a simplified expression for the area.

$$A = (2x)(3x + 1)$$

$$= 6x^2 + 2x$$

10. Expand and simplify

a) $3(y - 2) - 2(4 - 2y) + (6 - 7y)$

$$= 3y - 6 - 8 + 4y + 6 - 7y$$

$$= -8$$

b) $4k(k - 3) - 2(k^2 - 3k + 4) - (k^2 - 5)$

$$= 4k^2 - 12k - 2k^2 + 6k - 8 - k^2 + 5$$

$$= k^2 - 6k - 3$$

c) $\frac{1}{3}(3a + 2) + \frac{1}{4}(4a - 2)$

$$= a + \frac{2}{3} + a - \frac{1}{2}$$

$$= 2a + \frac{4}{6} - \frac{3}{6}$$

$$= 2a + \frac{1}{6}$$

d) $\frac{1}{2}(x - 2y) + \frac{1}{3}(3y - 2x)$

$$= \frac{x}{2} - y + y - \frac{2x}{3}$$

$$= \frac{3x}{6} - \frac{4x}{6}$$

$$= -\frac{x}{6}$$

