Expanding Brackets - Lesson 1

Expanding Brackets and Simplifying Expressions

LI

- Expand brackets and simplify.

SC

- Expand a single bracket.
- Collect like terms.

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Example 1

Expand the brackets and simplify fully :

$$2(3x + 2y) + 4(6x + 7y)$$

$$= 6x + 4y + 24x + 28y$$

$$= \boxed{30x + 32y}$$

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Example 2

Expand the brackets and simplify fully :

$$7w - 4(w - 6)$$

$$= 7w - 4w + 24$$

$$= \boxed{3w + 24}$$

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Example 3

Expand the brackets and simplify fully :

$$7(3p - 2) - 5(4p - 3)$$

$$= 21p - 14 - 20p + 15$$

$$= \boxed{p + 1}$$

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Example 4

Expand the brackets and simplify fully :

$$5r(2r - 1) + 3r(-4r + 1)$$

$$= 10r^2 - 5r - 12r^2 + 3r$$

$$= \boxed{-2r^2 - 2r}$$

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1 Expand.

a $2(t + 4)$ **b** $5(m - 3)$ **c** $-6(2a + 1)$ **d** $-10(11 - 9y)$

e $8(2t + 3y + 1)$ **f** $-5(-4m + 2n - 7r)$ **g** $a(4 + c)$ **h** $2a(8 - c)$

i $5x(3y - 4)$ **j** $y(y - 4)$ **k** $-b(b - c)$ **l** $a(b - c + a)$

2 Expand and simplify.

a $3(2x + 7) - 12$ **b** $10(3y - 7) + 8y$ **c** $6 + 3(2 + y)$ **d** $12 + 4(2t - 3)$

e $8p - 5(4 - p)$ **f** $7 + 6(-3 + 2y)$ **g** $7 - (2p + 3)$ **h** $2t - (9 + 2t)$

3 Expand.

a $5x(2x + 3)$ **b** $3y(4y - 5)$ **c** $6t(-5t + 1)$ **d** $-4c(2c - 7)$

e $9m(5m + 4)$ **f** $8w(2m - 3w)$ **g** $x(-x + 7y)$ **h** $-9s(-4u + 3s)$

4 Expand and simplify.

a $5x^2 + 3x(x + 2)$ **b** $2y - y(5y - 4)$ **c** $8 - 5x(2x + 3)$

d $11t^2 - t(t + 3)$ **e** $4x(x + 7) + 3(2x - 1)$ **f** $6w(2w + 1) - 4w(w + 1)$

Answers

1	**a**	$2t + 8$	**2**	**a**	$6x + 9$	**3**	**a**	$10x^2 + 15x$	**4**	**a**	$8x^2 + 6x$
	b	$5m - 15$		**b**	$38y - 70$		**b**	$12y^2 - 15y$		**b**	$6y - 5y^2$
	c	$-12a - 6$		**c**	$12 + 3y$		**c**	$-30t^2 + 6t$		**c**	$8 - 10x^2 - 15x$
	d	$90y - 110$		**d**	$8t$		**d**	$-8c^2 + 28c$		**d**	$10t^2 - 3t$
	e	$16t + 24y + 8$		**e**	$13p - 20$		**e**	$45m^2 + 36m$		**e**	$4x^2 + 34x - 3$
	f	$20m - 10n + 35r$		**f**	$12y - 11$		**f**	$16mw - 24w^2$		**f**	$8w^2 + 2w$
	g	$4a + ac$		**g**	$4 - 2p$		**g**	$-x^2 + 7xy$			
	h	$16a - 2ac$		**h**	-9		**h**	$36su - 27s^2$			
	i	$15xy - 20x$									
	j	$y^2 - 4y$									
	k	$-b^2 + bc$									
	l	$ab - ac + a^2$									

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