

The Distributive Property

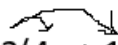
Name: _____ Class: _____ Date: _____

The distributive property is what you do to simplify an equation that has a number (term) in front of a bracket with one or more terms in it. Simply put, you have to multiply the outside term by each of the terms inside the bracket – this is known as ‘distributing’ the outside term into each of the inside terms.

Example: $3(4x + 12) = 3(4x) + 3(12) = 12x + 36$

We sometimes show this distribution with the following notation:

The arrows or lines help us remember that we are distributing.



$$3(4x + 12) = 12x + 36$$

Try these - copy them into your notebook and use distribute them

1) $7(\overbrace{1 - 8n}) = 7 - 56n$

2) $-8(b + 3)$

3) $-6(9 - 9v)$

4) $-(3x - 9)$

5) $-9(n + 6)$

6) $-10(a + 2)$

7) $(5k - 10) \cdot -9$

8) $-4(4 + 3p)$

As you can see from question 7), sometimes the number is attached to the back of the bracket but this is not the usual – remember that the dot is the same as multiplication. The dot can look like either of the following: • or · - Notice that it is different than a decimal: · vs .

Try these other ones - distribute and then combine like terms to simplify.

9) $-6(x + 2) - 2$

10) $4n - (7 - 6n)$

11) $-3 - 7(-3 - 6v)$

12) $-5(a - 6) + 2a$

13) $7(5n - 8) + 6(4 + 6n)$

14) $-(3a + 2) - 3(5a + 7)$

15) $-5(1 + 2k) - 8(-4 + 5k)$

16) $5(-3p + 7) + 5(p - 1)$

17) $-5(x + 2) + 5(x - 5)$

18) $-4(1 - 8n) - 4(8n + 4)$

19) $9(m + 8) + 11(3m + 4)$

20) $11(8r + 3) - 2(-9 + 6r)$

21) $7(-12x - 3) + 10(6x + 7)$

22) $-9(1 - 10n) - 2(3n + 9)$

REMEMBER to watch out for negative signs – even if it is just the negative sign – you have to distribute the negative sign like in 10) and 12) above. Consider it to be -1 and it makes more sense. This is sometimes known as an ‘invisible -1’.

1) $7(1 - 8n)$

$-56n + 7$

3) $-6(9 - 9v)$

$54v - 54$

5) $-9(n + 6)$

$-9n - 54$

7) $(5k - 10) \cdot -9$

$-45k + 90$

9) $-6(x + 2) - 2$

$-6x - 14$

11) $-3 - 7(-3 - 6v)$

$42v + 18$

13) $7(5n - 8) + 6(4 + 6n)$

$71n - 32$

15) $-5(1 + 2k) - 8(-4 + 5k)$

$-50k + 27$

17) $-5(x + 2) + 5(x - 5)$

-35

19) $9(m + 8) + 11(3m + 4)$

$42m + 116$

21) $7(-12x - 3) + 10(6x + 7)$

$-24x + 49$

2) $-8(b + 3)$

$-8b - 24$

4) $-(3x - 9)$

$-3x + 9$

6) $-10(a + 2)$

$-10a - 20$

8) $-4(4 + 3p)$

$-12p - 16$

10) $4n - (7 - 6n)$

$10n - 7$

12) $-5(a - 6) + 2a$

$-3a + 30$

14) $-(3a + 2) - 3(5a + 7)$

$-18a - 23$

16) $5(-3p + 7) + 5(p - 1)$

$-10p + 30$

18) $-4(1 - 8n) - 4(8n + 4)$

-20

20) $11(8r + 3) - 2(-9 + 6r)$

$76r + 51$

22) $-9(1 - 10n) - 2(3n + 9)$

$+84n - 27$