

## Distributive Property

The basic idea behind the distributive property is a number sharing itself through multiplication.

Example:

$$\begin{aligned} 3(7 + 4) &= \\ 3(7) + 3(4) &= \\ 21 + 12 &= \\ 33 & \\ \text{where } 3(7+4) &= 3(11) = 33. \end{aligned}$$

This property really comes of value when trying to multiply larger numbers, let's say  $3 \times 112$ . The larger math is tougher to do, especially in your head, but if you break it apart,  $112 = 100 + 12$ , these two numbers are a lot easier to multiply by 3.

$$\begin{aligned} 3 \times 112 &= \\ 3(100 + 12) &= \\ 3(100) + 3(12) &= \\ 300 + 36 &= \\ 336 & \end{aligned}$$

You could also split apart other numbers. Maybe you're not so good with your 8 times tables and there is a problem that requires you to do  $6 \times 8$ . You could split that apart just as easily:

$$\begin{aligned} 6 \times 8 &= \\ 6(5 + 3) &= \\ 6(5) + 6(3) &= \\ 30 + 18 &= \\ 48 & \end{aligned}$$

Complete each statement using the distributive property.

- |                           |                            |
|---------------------------|----------------------------|
| 1. $3(4 + 12) =$ _____    | 2. $6(8 + 3) =$ _____      |
| 3. $7(3 + 2) =$ _____     | 4. $5(5 + 4) =$ _____      |
| 5. _____ $= 2(4) + 2(5)$  | 6. _____ $= 10(7) + 10(5)$ |
| 7. _____ $= 3(2) + 3(11)$ | 8. _____ $= 9(3) + 9(6)$   |

Evaluate each multiplication problem using the distributive property to simplify.

- |   |   |
|---|---|
| <p>9. <math>3 \times 53</math></p> <p><math>3(\underline{\quad} + \underline{\quad})</math></p> <p><math>3(\underline{\quad}) + 3(\underline{\quad})</math></p> <p>_____ + _____</p> <p>_____</p> | <p>10. <math>5 \times 112</math></p> <p>_____ <math>(\underline{\quad} + \underline{\quad})</math></p> <p>_____ <math>(\underline{\quad}) +</math> _____ <math>(\underline{\quad})</math></p> <p>_____ + _____</p> <p>_____</p> |
|---|---|

## Distributive Property

Complete each statement using the distributive property.

1.  $9(3 + 12) = \underline{\hspace{2cm}}$

2.  $5(12 + 8) = \underline{\hspace{2cm}}$

3.  $11(3 + 2) = \underline{\hspace{2cm}}$

4.  $7(6 + 6) = \underline{\hspace{2cm}}$

5.  $15(5 + 4) = \underline{\hspace{2cm}}$

6.  $10(2 + 3) = \underline{\hspace{2cm}}$

7.  $\underline{\hspace{2cm}} = 8(2) + 8(3)$

8.  $\underline{\hspace{2cm}} = 6(5) + 6(4)$

9.  $\underline{\hspace{2cm}} = 2(4) + 2(11)$

10.  $\underline{\hspace{2cm}} = 9(6) + 9(3)$

11.  $\underline{\hspace{2cm}} = 5(14) + 5(1)$

12.  $\underline{\hspace{2cm}} = 13(9) + 13(5)$

Evaluate each multiplication problem using the distributive property to simplify.

13.  $2 \times 74$

$$2(\underline{\hspace{1cm}} + \underline{\hspace{1cm}})$$

$$2(\underline{\hspace{1cm}}) + 2(\underline{\hspace{1cm}})$$

$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$\underline{\hspace{2cm}}$$

14.  $3 \times \underline{\hspace{1cm}}$

$$\underline{\hspace{1cm}} (20 + 5)$$

$$\underline{\hspace{1cm}} (\underline{\hspace{1cm}}) + \underline{\hspace{1cm}} (\underline{\hspace{1cm}})$$

$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$\underline{\hspace{2cm}}$$

15. Test Prep – Which of the following is **NOT** equal to  $7(60 + 4)$ ?

a.  $7(64)$

b.  $7(60) + 7(4)$

c.  $490 + 28$

d.  $448$

16. Writing in Math.

Ariana needed to multiply 8 by 24. To do so, she did  $(8 \times 12) + (8 \times 12)$ . Is there a more effective way for her to use the distributive property? If so, how should she have done the problem?

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