

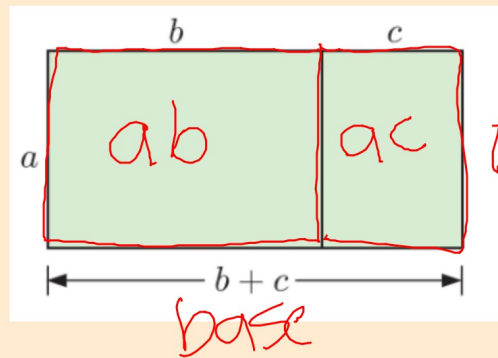
Welcome Back to MYP Math 9!

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: <u>3/5</u> Topic: _____	0 1 2	No Homework (Test Friday)
Tuesday Date: <u>3/6</u> Topic: _____	0 1 2	No Homework
Wednesday Date: <u>3/7</u> Topic: <u>21A Quadratic Functions</u>	0 1 2	
Thursday Date: _____ Topic: _____	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	

4A

THE DISTRIBUTIVE LAW

Warm-up: Area = base \times height
Find the area of the rectangle.



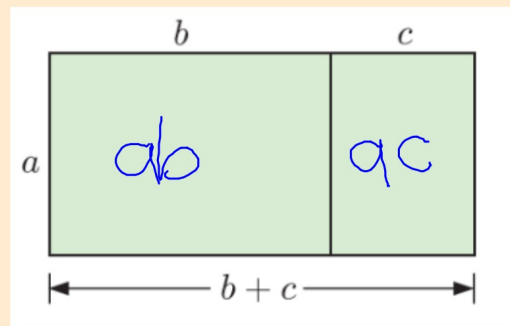
$$A = a(b+c)$$
$$= ab + ac$$

4A

THE DISTRIBUTIVE LAW

Warm-up:

Find the area of the rectangle.



$$\text{Area} = a(b+c) = ab+ac!$$

Class Plan:

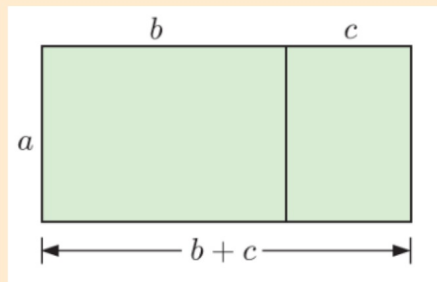
1. Warm-up

2. 4A The Distributive Law

4A

THE DISTRIBUTIVE LAW

3. Practice

4A**THE DISTRIBUTIVE LAW****GEOMETRIC DEMONSTRATION**

The area of the large rectangle is $a(b + c)$.


However, this area could also be found by adding the areas of the two small rectangles. This is $ab + ac$.

So, $a(b + c) = ab + ac$. {equating areas}

4A

THE DISTRIBUTIVE LAW

We can **expand** the brackets using the **distributive law**:

$$a(b + c) = ab + ac$$


a is the **coefficient**

of the expression in the brackets.

The distributive law says that we must multiply the coefficient by each term within the brackets and add the results.

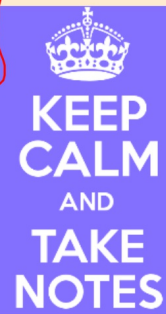
Example 1

a $3(4x + 1)$

$$12x + 3$$

b $2x(5 - 2x)$

$$2x \begin{array}{|c|c|} \hline 5 & -2x \\ \hline 10x & -4x^2 \\ \hline \end{array}$$
$$= 10x - 4x^2$$



Solutions

a

$$\begin{aligned} & 3(4x + 1) \\ &= 3 \times 4x + 3 \times 1 \\ &= 12x + 3 \end{aligned}$$

b

$$\begin{aligned} & 2x(5 - 2x) \\ &= 2x(5 + -2x) \\ &= 2x \times 5 + 2x \times -2x \\ &= 10x - 4x^2 \end{aligned}$$

Example 1

$$c \quad -2x(x - 3)$$

$$\begin{aligned} c \quad & -2x(x - 3) \\ & = -2x(x + -3) \\ & = -2x \times x + -2x \times -3 \\ & = -2x^2 + 6x \end{aligned}$$



Example 2

Expand and simplify:

a $2(3x - 1) + 3(5 - x)$

$$6x - 2 + 15 - 3x$$

$$\boxed{3x + 13}$$



KEEP
CALM
AND
TAKE
NOTES

Quadratic formula rap.....

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

"Opposite of b, plus or minus square root.
B-squared minus 4ac is the TRUTH! Put
it all over 2a - that's what I'm sayin!
Now you know the quadratic equation!"

Example 2**Solutions**

a

$$\begin{aligned} & 2(3x - 1) + 3(5 - x) \\ &= 2 \times 3x + 2 \times -1 + 3 \times 5 + 3 \times -x \\ &= 6x - 2 + 15 - 3x \\ &= 3x + 13 \end{aligned}$$

Example 2

Expand and simplify:

b $x(2x - 1) - 2x(5 - x)$

$$2x^2 - x - 10x + 2x^2$$

$$4x^2 - 11x$$



KEEP
CALM
AND
TAKE
NOTES

In **b**, the minus sign in front of $2x$ affects *both* terms inside the following bracket.



Example 2**Solutions**

b $x(2x - 1) - 2x(5 - x)$

$= x \times 2x + x \times -1 + -2x \times 5 + -2x \times -x$

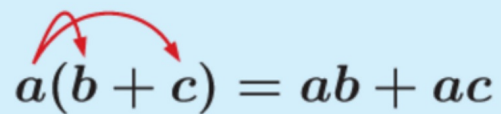
$= 2x^2 - x - 10x + 2x^2$

$= 4x^2 - 11x$

Exercises...

EXERCISE 4A

DO: 4A Distributive Law Exercises


$$a(b + c) = ab + ac$$

Work Together!

Exercises...

1. Number 1-15 on the first problem of each row.

Exercises 4A Distributive Law Name _____

1 Expand and simplify:

a $2(x+1)$	b $5(x+2)$	c $4(x-6)$	d $7(x-1)$
e $3(2a+b)$	f $6(x+3y)$	g $8(a-b)$	h $4(m^2-n^2)$
i $-3(x+2)$	j $-4(2a-1)$	k $a(-a+5)$	l $3b(b-4)$
m $-(y+2)$	n $-5(x-3)$	o $-(2-b)$	p $-4(a-b)$
q $x(x+y)$	r $-x(-x-y)$	s $a(2a-1)$	t $-3x(7-4x)$

Draw a 4x4 Grid

Write 1-15 and FREE space randomly on your game board!

Four in a Row

FREE	13	11	10
1	2	3	7
10	4	5	8
15	12	14	9

Exercises...

1 Expand and simplify:

1 a $2(x + 1)$

b $5(x + 2)$

c $4(x - 6)$

d $7(x - 1)$

2 e $3(2a + b)$

f $6(x + 3y)$

g $8(a - b)$

h $4(m^2 - n^2)$

$4m^2 - 4n^2$

Exercises... 1 Expand and simplify:

3 **i** $-3(x+2)$

j $-4(2a-1)$

k $a(-a+5)$

l $3b(b-4)$

$$-8a+4$$

4 **m** $-(y+2)$

n $-5(x-3)$

o $-(2-b)$

p $-4(a-b)$

$$(-x)(-x) + (-x)(-y)$$

5 **q** $x(x+y)$

r $-x(-x-y)$

s $a(2a-1)$

t $-3x(7-4x)$

$$x^2 + xy$$

Exercises...

2 Expand and simplify:

6 a $4(x + y + 5)$

b $2(3a - 5b + 1)$

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

$$3x^2 - 6xy + 9x$$

7 d $-2(a - 3b + 5c)$

e $6x(x^2 + 5x - 10)$

f $4n(n^2 - 2n - 8)$

Exercises...

3 Expand and simplify:

8 **a** $2 + 3(x + 1)$ **b** $15 - 2(x + 5)$ **c** $4(x - 1) + 7$

9 **d** $6(x - 2) - 8x$ **e** $a(a - 2) + 2a$ **f** $3m(4 - m) + m^2$

Exercises... 4 Expand and simplify:

10 **g** $3a(b-a) + 4a^2$

$$3ab - 3a^2 + 4a^2$$

$$\boxed{3ab + a^2}$$

h $5b - 2b(b-2)$

i $6a^2 - 3a(a+4)$

$$6a^2 - 3a^2 - 12a$$

$$\boxed{3a^2 - 12a}$$

11 **a** $2(x-3) + 3(x+4)$

b $4b + (a-b)$

c $4b - (a-b)$

$$4b - a + b$$

$$\boxed{5b - a}$$

Exercises...

4 Expand and simplify:

12 **d** $3(x + 2) + 5(4 - x)$ **e** $6(m - 2) - 3(2m + 1)$ **f** $7n - 5(3 - 2n)$

13 **d** $5(y - x) + 6(x - y)$ **h** $a(a + 2) + 5(a - 3)$ **i** $x(x + 5) - 3(x - 4)$

Exercises...

4 Expand and simplify:

14 $a^2 + a(a + 3)$

k $-a^2 - a(a - 1)$

l $x(x + y) - y(x + y)$

15 m $-3(x - 6) - (2 - x)$

n $4(3x - 2) - (3x + 1)$

o $2x(x - 5) - 3x(2 - x)$

$$2x^2 - 10x - 6x + 3x^2$$
$$\boxed{5x^2 - 16x}$$

Exercise Solutions

EXERCISE 4A

- 1** a $2x + 2$ b $5x + 10$ c $4x - 24$ d $7x - 7$
e $6a + 3b$ f $6x + 18y$ g $8a - 8b$ h $4m^2 - 4n^2$
i $-3x - 6$ j $-8a + 4$ k $-a^2 + 5a$ l $3b^2 - 12b$
m $-y - 2$ n $-5x + 15$ o $-2 + b$ p $-4a + 4b$
q $x^2 + xy$ r $x^2 + xy$ s $2a^2 - a$ t $-21x + 12x^2$
- 2** a $4x + 4y + 20$ b $6a - 10b + 2$
c $3x^2 - 6xy + 9x$ d $-2a + 6b - 10c$
e $6x^3 + 30x^2 - 60x$ f $4n^3 - 8n^2 - 32n$

- 3** a $3x + 5$ b $-2x + 5$ c $4x + 3$
d $-2x - 12$ e a^2 f $12m - 2m^2$
g $3ab + a^2$ h $-2b^2 + 9b$ i $3a^2 - 12a$
- 4** a $5x + 6$ b $a + 3b$ c $-a + 5b$
d $-2x + 26$ e -15 f $17n - 15$

- g $x - y$ h $a^2 + 7a - 15$ i $x^2 + 2x + 12$
j $2a^2 + 3a$ k $-2a^2 + a$ l $x^2 - y^2$
m $-2x + 16$ n $9x - 9$ o $5x^2 - 16x$