"I Can Apply the Distributive Property to Generate an Equivalent Expression."

Distributive Property

The tape diagram below represents the **Quantity** $(a + b)$

a	b

How does the tape diagram below represent $3(a+b)$?

a	b	a	b	a	b

After applying the Commutative Property, we can see an **Equivalent Expression** to $3(a+b)$.

What conclusion can be drawn from the models about equivalent expressions?

To prove that these two forms are equivalent, let's plug in some values for a and b see what happens.

Let a = 3 and b = 4

$3(a+b)$ $3a+3b$

Let a = 5 and b = 7

$3(a+b)$ $3a+3b$

Remember $3(a+b)$ means the repeated addition of $a+b$ three times.

$$3(a+b) = \boldsymbol{a+b+a+b+a+b}$$

Use this idea to expand the following expressions.
Then use the Commutative Property to simplify.

$4(5x+3y)$

$3(x+6y-5z)$

WE DO

Expression	$4(2+8-3)$	$9(8a-p)$	Expression	$7(3h+2j)+8h$
Distribute	_____	_____	Distribute	_____
Evaluate	_____		Combine	_____

"I Can Apply the Distributive Property to Generate an Equivalent Expression."

Distributive Property

The tape diagram below represents the **Quantity** $(a + b)$

a	b

$(a+b)$

How does the tape diagram below represent $3(a+b)$?

$a + b + a + b + a + b$

a	b	a	b	a	b

After applying the Commutative Property, we can see an **Equivalent Expression** to $3(a+b)$.

a	a	a	b	b	b

$3a + 3b$

What conclusion can be drawn from the models about equivalent expressions?

$$3(a+b) = 3a + 3b$$

To prove that these two forms are equivalent, let's plug in some values for a and b see what happens.

Let a = 3 and b = 4

$3(a+b)$ = $3a+3b$

$3\cdot(3+4)$

$3\cdot 7$

21

$3\cdot 3 + 3\cdot 4$

$9 + 3\cdot 4$

$9 + 12$

21

Let a = 5 and b = 7

$3(a+b)$

$3(5+7)$

$3\cdot 12$

36

$3a+3b$

$3\cdot 5 + 3\cdot 7$

$15 + 3\cdot 7$

$15 + 21$

36

Remember $3(a+b)$ means the repeated addition of $a+b$ three times.

$$3(a+b) = a+b+a+b+a+b$$

Use this idea to expand the following expressions.
Then use the Commutative Property to simplify.

$4(5x+3y) = 20x + 12y$

$5x+3y + 5x+3y + 5x+3y + 5x+3y$

$5x+5x+5x+5x + 3y+3y+3y+3y$

$20x + 12y$

$3(1x+6y-5z) = 3x + 18y - 15z$

$1x+6y-5z + 1x+6y-5z + 1x+6y-5z$

$1x+1x+1x + 6y+6y+6y - 5z - 5z - 5z$

$3x + 18y - 15z$

WE DO

Expression $4(2+8-3)$

Distribute $8+32-12$

Evaluate $40-12$

28

$9(8a-1p)$

$72a-9p$

Expression $7(3h+2j)+8h$

Distribute $21h+14j+8h$

Combine $21h+8h+14j$

$29h+14j$