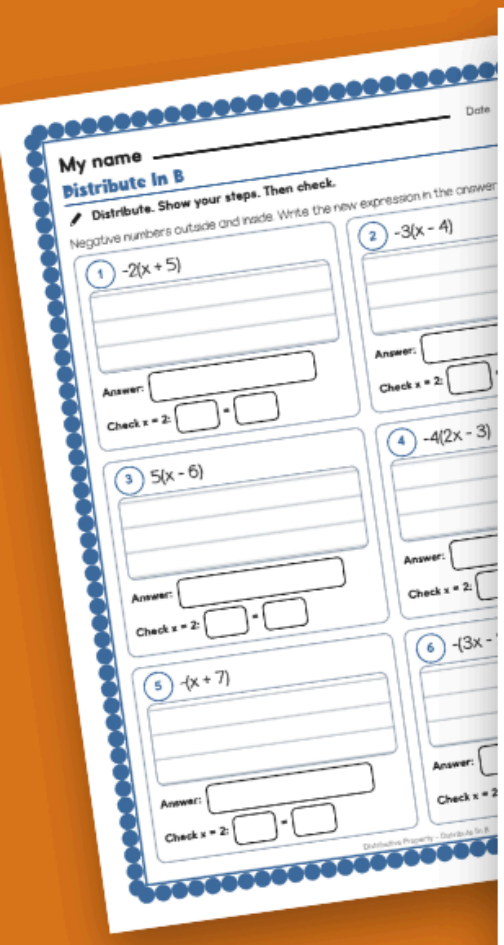
DISTRIBUTIVE PROPERTY NOTES

GUIDED NOTES + PRACTICE
GRADES 6-8

26 PAGES


My name _____ Date _____

Distribute In B

Distribute. Show your steps. Then check.

Negative numbers outside and inside. Write the new expression in the answer

1 -2(x + 5)

Answer:

Check x = 2: ___ = ___

2 -3(x - 4)

Answer:

Check x = 2:

3 5(x - 6)

Answer:

Check x = 2: ___ = ___

4 -4(2x - 3)

Answer:

Check x = 2:

5 -(x + 7)

Answer:

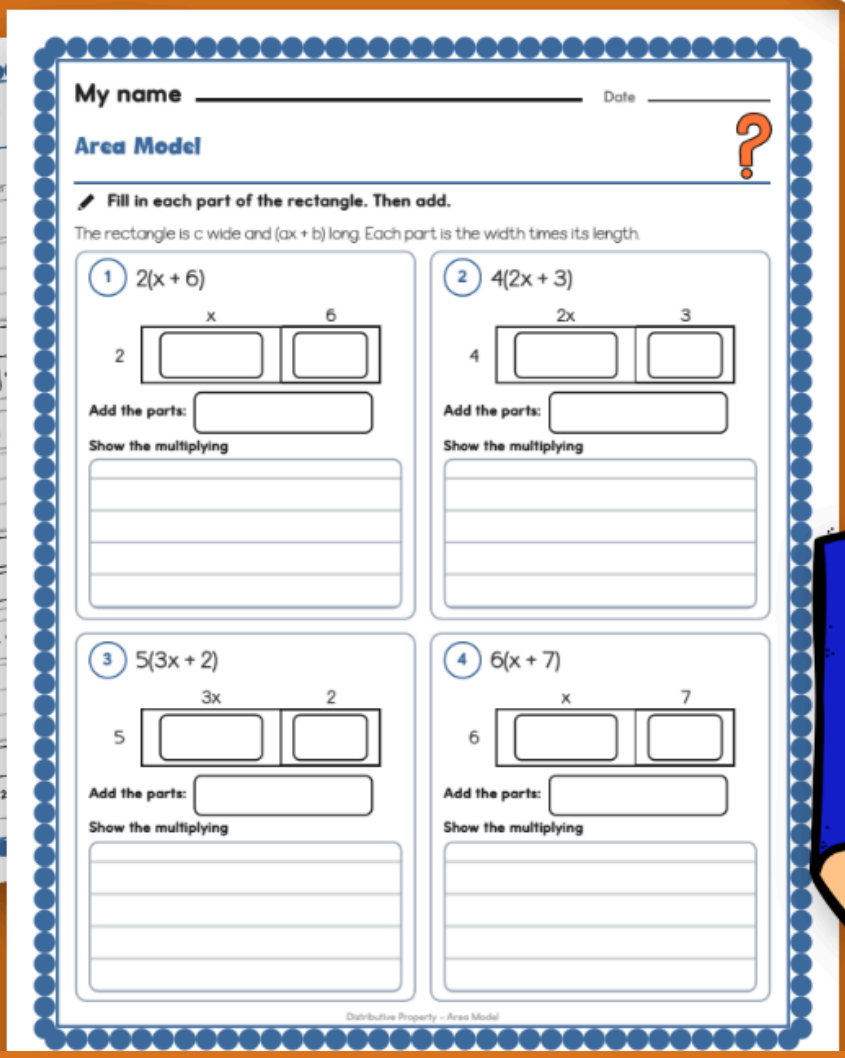
Check x = 2: ___ = ___

6 -(3x -

Answer:

Check x = 2

Distributive Property - Distribute In B


My name _____ Date _____

Area Model

Fill in each part of the rectangle. Then add.

The rectangle is c wide and (ax + b) long. Each part is the width times its length.

1 2(x + 6)

	x	6
2		

Add the parts:

Show the multiplying

2 4(2x + 3)

	2x	3
4		

Add the parts:

Show the multiplying

3 5(3x + 2)

	3x	2
5		

Add the parts:

Show the multiplying

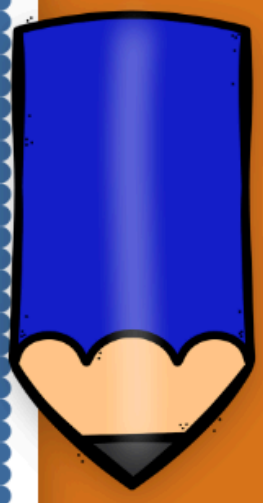
4 6(x + 7)

	x	7
6		

Add the parts:

Show the multiplying

Distributive Property - Area Model



Bright Path Sped

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Print at 100 percent

Turn off fit to page and shrink to fit so the ruled lines stay 0.34 inch apart. Every student page is black and white inside a colored border, so it still reads when copied in black and white.

Student work

A filled-in tracker, class grid or team note carries a real student's name. Keep it in the data folder, and use a first name only on any page that leaves your hands.

Need help?

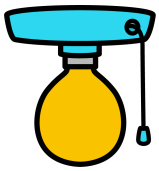
If a field will not behave or a page will not print the way you expect, use Ask a Question on the product page before leaving a review. Fixes ship as free updates in My Purchases.

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PREVIEW

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My name _____ Date _____



Distribute and Factor

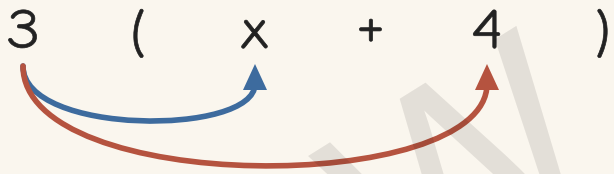
Read the steps. Keep this page next to you.

Distribute IN means multiply it out. Factor OUT means undo it.

1 Distribute IN

Multiply the number outside by **every** term inside. Draw an arrow to each one.

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



2 Factor OUT

Find the greatest number that goes into every term. Write it outside parentheses. Divide each term by it.

Example: 12x + 18. The GCF of 12 and 18 is 6. 6(2x + 3)

3 Watch the signs

A negative times a negative is positive. Keep each sign with its number.

Example: -2(x - 5) = (-2)(x) + (-2)(-5) = -2x + 10

4 Check

Put the same number in for x in both forms. The two values must match.

Example: x = 2: before 18, after 18

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Worked Example 1

Read the example. Then fill in the blanks.

Example. Distribute $4(2x + 3)$. The numbers are made up for practice.

Start	$4(2x + 3)$ Start with the expression.
Step 1	$4(2x) + 4(3)$ Multiply the outside number by each term inside the parentheses.
Step 2	$8x + 12$ Multiply each pair. Watch the signs.
Check	Before: 28. After: 28. They match. Check. Put 2 in for x in both forms.

Your turn. Do the same steps for $3(4x + 5)$

Start	Start with the expression.	$3(4x + 5)$
Step 1	Multiply the outside number by each term inside the parentheses.	
Step 2	Multiply each pair. Watch the signs.	
Check	Check. Put 2 in for x in both forms.	

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Area Model

Fill in each part of the rectangle. Then add.

The rectangle is c wide and (ax + b) long. Each part is the width times its length.

1 $2(x + 6)$

	x	6
2		

Add the parts: _____

Show the multiplying

2 $4(2x + 3)$

	2x	3
4		

Add the parts: _____

Show the multiplying

3 $5(3x + 2)$

	3x	2
5		

Add the parts: _____

Show the multiplying

4 $6(x + 7)$

	x	7
6		

Add the parts: _____

Show the multiplying

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Distribute In B

Distribute. Show your steps. Then check.

Negative numbers outside and inside. Write the new expression in the answer box.

1 $-2(x + 5)$

Answer:

Check x = 2: ☐ = ☐

2 $-3(x - 4)$

Answer:

Check x = 2: ☐ = ☐

3 $5(x - 6)$

Answer:

Check x = 2: ☐ = ☐

4 $-4(2x - 3)$

Answer:

Check x = 2: ☐ = ☐

5 $-(x + 7)$

Answer:

Check x = 2: ☐ = ☐

6 $-(3x - 2)$

Answer:

Check x = 2: ☐ = ☐

PREVIEW

Preview - Bright Path Shop

My name _____ Date _____

Factor Out A

Factor out the GCF. Check by distributing.

The greatest common factor of two positive terms. Write the GCF, then the factored form.

1. $12x + 30$

GCF ____ Answer ____

2. $8x + 20$

GCF ____ Answer ____

3. $15x + 10$

GCF ____ Answer ____

4. $9x + 27$

GCF ____ Answer ____

5. $14x + 21$

GCF ____ Answer ____

6. $16x + 24$

GCF ____ Answer ____

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Do They Match?



Put the number in. Do both sides match?

Put the number in for x on both sides. If the two values are the same, the sides are equal.

1. $3(x + 4) = 3x + 12$ Try $x = 2$
   Left side ☐ **Right side** ☐ ☐ **equal** ☐ **not equal**

2. $2(x - 5) = 2x - 5$ Try $x = 3$
   Left side ☐ **Right side** ☐ ☐ **equal** ☐ **not equal**

3. $-4(x + 2) = -4x - 8$ Try $x = 1$
   Left side ☐ **Right side** ☐ ☐ **equal** ☐ **not equal**

4. $-3(x - 1) = -3x - 3$ Try $x = 2$
   Left side ☐ **Right side** ☐ ☐ **equal** ☐ **not equal**

5. $5(2x + 1) = 10x + 5$ Try $x = 3$
   Left side ☐ **Right side** ☐ ☐ **equal** ☐ **not equal**

6. $-(x - 6) = -x - 6$ Try $x = 4$
   Left side ☐ **Right side** ☐ ☐ **equal** ☐ **not equal**

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Exit Tickets

Do each one. Tell how sure you are.

Exit ticket 1 $-3(2x - 5)$ **Distribute.**

My answer: ☐ How sure am I?

☐ sure ☐ kind of sure ☐ not sure

Exit ticket 2 $18x + 24$ **Factor out the GCF.**

My answer: ☐ How sure am I?

☐ sure ☐ kind of sure ☐ not sure

Exit ticket 3 $5(x + 2) - 3x$ **Distribute. Then combine like terms.**

My answer: ☐ How sure am I?

☐ sure ☐ kind of sure ☐ not sure

PREVIEW

Answer Key: Distribute In, Factor Out

Every expression, its answer and the value both forms share at x = 2.

Distribute In A page 8: a whole number times a sum, with and without x

#	Expression	Answer	At x = 2
1	3(x + 4)	3x + 12	18
2	5(x + 2)	5x + 10	20
3	2(3x + 7)	6x + 14	26
4	4(2x + 5)	8x + 20	36
5	6(x + 3)	6x + 18	30
6	7(2x + 1)	14x + 7	35

Distribute In B page 9: negative numbers outside and inside

#	Expression	Answer	At x = 2
1	-2(x + 5)	-2x - 10	-14
2	-3(x - 4)	-3x + 12	6
3	5(x - 6)	5x - 30	-20
4	-4(2x - 3)	-8x + 12	-4
5	-(x + 7)	-x - 7	-9
6	-(3x - 2)	-3x + 2	-4

Distribute In C page 10: distribute first, then combine like terms

#	Expression	Answer	At x = 2
1	3(x + 2) + x	4x + 6	14
2	4(x - 1) + 3x - 2	7x - 6	8
3	2(3x + 1) - 4x	2x + 2	6
4	5x - 2(x + 3)	3x - 6	0
5	-3(x - 2) + 8	-3x + 14	8
6	6 + 2(4x - 5)	8x - 4	12

Factor Out A page 11: the greatest common factor of two positive terms

#	Expression	GCF	Answer
1	12x + 30	6	6(2x + 5)
2	8x + 20	4	4(2x + 5)
3	15x + 10	5	5(3x + 2)
4	9x + 27	9	9(x + 3)
5	14x + 21	7	7(2x + 3)
6	16x + 24	8	8(2x + 3)

Factor Out B page 12: subtraction, and a negative first term

#	Expression	GCF	Answer
1	10x - 15	5	5(2x - 3)
2	6x - 18	6	6(x - 3)
3	-4x - 12	-4	-4(x + 3)
4	-8x + 20	-4	-4(2x - 5)
5	-9x + 6	-3	-3(3x - 2)
6	12x - 30	6	6(2x - 5)

Your turn answers (guided copies)

Page 5: 3(4x + 5) = 12x + 15.
Page 6: 14x + 35 = 7(2x + 5).

How the answers were made

Every expression was expanded by program and put back in at x = 2 to make the last column, so you can check a student's check line at a glance. Accept any correct answer that matches when distributed. When the first term is negative, this key factors out a negative number; a student who factors out the positive GCF and writes a negative inside is also right.

PREVIEW

Answer Key: Words, Exit, Sort

Word problems, exit tickets and the cut-and-paste match, with the common slips to listen for.

Write It, Distribute It page 15

#	With parentheses	Distributed	Check
1	4(x + 3)	4x + 12	x = 5: 32
2	6(x + 5)	6x + 30	x = 4: 54
3	3(2x - 1)	6x - 3	x = 3: 15

Exit Tickets page 16

#	Expression	Answer
1	-3(2x - 5)	-6x + 15
2	18x + 24	6(3x + 4)
3	5(x + 2) - 3x	2x + 10

Common slips to watch for

- Multiplying only the first term inside the parentheses.
- Dropping a minus sign inside, or forgetting that a negative times a negative is positive.
- Factoring out a common factor that is not the greatest.
- Dividing a subtraction and losing its sign.

Cut and Paste page 17

Piece (row, column)	Piece	Box
r1 c1	**-2(x - 7)**	-2x + 14
r1 c2	**6(x + 2)**	6x + 12
r1 c3	**3(3x + 1)**	9x + 3
r2 c1	**8(x - 3)**	8x - 24
r2 c2	**5(2x - 3)**	10x - 15
r2 c3	**-4(x + 2)**	-4x - 8

How the answers were made

Each expression was expanded by program, the word problems were checked by putting the number in both forms, and each cut-and-paste piece was matched by distributing it. Nothing here is typed from memory.

PREVIEW

Class Progress Grid

Every student on one grid: items right by page type.

Class or group _____ Month _____

Student	Distribute (of 18)	Factor (of 12)	Area (of 4)	Match (of 6)	Mistakes (of 4)	Words (of 3)	Exit (of 3)	Sort (of 6)

PREVIEW

How to fill this in

For each column, add up how many items that student has right with no prompt (the tracker rows). One glance across a row shows which skill is easiest and which is next.

Grouping for small-group time

Students low in the Distribute column need the steps page (page 4) and the first worked example (page 5). Students low in the Factor column need the second (page 6). Students near full marks can move to the mistakes and the word problems (pages 14 and 15).

Marcus's Tracker (Invented Student)

Marcus T. is invented; nothing on this page describes a real student. The blank tracker is on page 21.

Student	Teacher	Month
Marcus T. (an invented student)	Ms. Reyes (invented)	October

Page	Page type and set	Items	Right	Date	Notes
7	Area Model	4	4	10/20	-
8	Distribute In A	6	6	10/6	-
9	Distribute In B	6	4	10/8	Two sign slips on negatives
10	Distribute In C	6	3	10/13	Forgot to combine like terms after distributing
11	Factor Out A	6	5	10/15	Used a factor that was not the greatest once
12	Factor Out B	6	3	10/17	Lost the minus sign when dividing
13	Do They Match?	6	-	-	-
14	Find the Mistake	4	-	-	-
15	Write It, Distribute It	3	-	-	-
16	Exit Tickets	3	-	-	-
17	Cut and Paste	6	-	-	-

PREVIEW

How to read it

Marcus T. has done **6 of 11** scored pages and got **25 of 34** items right with no prompt. **2** pages were all right and **4** carry a note. Every number comes from the table.

What the table points to

The lowest pages are Distribute In C (3 of 6) and Factor Out B (3 of 6). Those are where the next practice goes. The 5 pages left blank are not tried yet, never wrong.