



TABE Math-E

PAXEN

Unit-3 Multiply and Divide Whole Numbers

Lesson 17 Multiplication With DISTRIBUTIVE PROPERTY

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Nolan Tomboulian

Some graphics may not have copied well during the scan process.

Math-E - Lesson 17 – Distributive

Lesson 17

Use the Distributive Property to Multiply

3.OA.5 – Low

You can use the Distributive Property to break up a factor into an addition or a subtraction expression with two smaller numbers. By breaking up the factor into two parts, you can use known facts to solve problems with larger factors.

For example, $4 \times 15 = 60$. With the Distributive Property, you can find the same product by breaking apart the 15 into two numbers that equal fifteen when added or subtracted.

$$4 \times (10 + 5) = (4 \times 10) + (4 \times 5) = 40 + 20 = 60$$

$$4 \times (20 - 5) = (4 \times 20) - (4 \times 5) = 80 - 20 = 60$$

Example What is 7×14 ?

1) Restate the problem by breaking up the larger number into an addition expression with two smaller factors.

$$7 \times 14 = 7 \times (10 + 4)$$

2) Use the Distributive Property. Multiply the first factor by each of the numbers in the addition expression.

$$7 \times (10 + 4) = (7 \times 10) + (7 \times 4) =$$

3) Add the products of each multiplication expression.

$$(7 \times 10) + (7 \times 4) = 70 + 28 = 98$$

$$\text{So, } 7 \times 14 = 98.$$

Test Example

1. Jose uses the Distributive Property to multiply 2×47 . Which two options show how he found his answer?

A. 2×47

$$2 \times (40 + 7)$$

$$(2 \times 40) + (2 \times 7)$$

$$80 + 14 = 94$$

C. 2×47

$$2 \times (50 - 3)$$

$$(2 \times 50) + (2 \times 3)$$

$$100 + 6 = 106$$

B. 2×47

$$2 \times (45 + 3)$$

$$(2 \times 45) + (2 \times 3)$$

$$90 + 6 = 96$$

D. 2×47

$$2 \times (50 - 3)$$

$$(2 \times 50) - (2 \times 3)$$

$$100 - 6 = 94$$

1. A, D 47 can be restated as $40 + 7$ or $50 - 3$.

Hint

When distributing multiplication to a subtraction expression, be sure to **subtract** the product of the second expression from the product of the first expression.

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Practice

Read each question. Select the correct answer.

- 1 Paula buys 3 packages of paper towels. There are 6 paper towel rolls in each package. How many paper towel rolls does Paula buy?
- Paula uses the Distributive Property to multiply. First, she multiplies 3×2 . Then she multiplies 3×4 . What should her next step be?
- A. Multiply 6×12 .
B. Add $6 + 12$.
C. Multiply 5×7 .
D. Add $5 + 7$.
- 2 Which expression is equal to 4×6 ?
- A. $(4 \times 4) + (4 \times 4)$
B. $(2 \times 4) + (2 \times 4)$
C. $(4 \times 8) + (4 \times 8)$
D. $(4 \times 4) + (4 \times 2)$
- 3 Asher uses the Distributive Property to multiply 9×6 .
- $(5 + 4) \times 6 = (5 \times 6) + (\underline{\hspace{2cm}})$
- First, he multiplies 5×6 . What should his next step be? Which of these fills in the blank?
- A. 6×9
B. 4×6
C. 4×9
D. 6×6
- 4 Which equation shows the Distributive Property of Multiplication?
- A. $9 \times 8 = 8 \times 9$
B. $3 \times (5 \times 3) = (3 \times 5) \times 3$
C. $6 \times 14 = (6 \times 10) \times (6 \times 4)$
D. $3 \times 24 = (3 \times 20) + (3 \times 4)$
- 5 Which two expressions are equal to 2×7 ?
- A. $(2 \times 10) - (2 \times 3) = 14$
B. $(2 \times 3) + (4 \times 3) = 18$
C. $(2 \times 4) + (4 \times 3) = 14$
D. $(2 \times 4) + (2 \times 3) = 14$
- 6 Drew uses the Distributive Property to multiply 12×3 . Which equation shows how he solved the problem?
- A. $(6 \times 3) + (6 \times 3) = 36$
B. $(3 \times 3) + (6 \times 3) = 36$
C. $(6 \times 6) + (6 \times 3) = 54$
D. $(3 \times 3) + (3 \times 3) = 18$
- 7 Which two expressions are equal to 10×3 ?
- A. $(5 \times 3) + (2 \times 3)$
B. $(10 \times 10) - (10 \times 7)$
C. $(5 \times 2) \times (3 \times 2)$
D. $(5 \times 3) + (5 \times 3)$
- 8 Which expression has the same value as 8×6 ?
- A. $8 + (3 + 3)$
B. $8 \times (3 + 3)$
C. $(5 \times 3) + (3 \times 3)$
D. $(4 \times 3) + (4 \times 3)$
- 9 Which two expressions are equal to 16×5 ?
- A. $16 + (3 \times 2)$
B. $16 \times (3 + 2)$
C. $(5 \times 4) + (5 \times 4)$
D. $(8 \times 5) + (8 \times 5)$

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Lesson 17

Use the Distributive Property to Multiply

(3.OA.5)

1. B. After you multiply each expression, you add the products.
2. D. 6 can be restated as $(4 + 2)$.
3. B. Since Asher broke apart 9, his next step is to multiply 6 by 4.
4. D. 24 can be restated as $(20 + 4)$.
5. A, D. 7 can be restated as $(10 - 3)$ or $(4 + 3)$.
6. A. 12 can be restated as $(6 + 6)$.
7. B, D. 3 can be restated as $(10 - 7)$. 10 can be restated as $(5 + 5)$.
8. B. 6 can be restated as $(3 + 3)$.
9. B, D. 5 can be restated as $(3 + 2)$. 16 can be restated as $(8 + 8)$.

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1 $(3 \times 7) + (3 \times 2) = ?$

- A. 6 B. 21
C. 27 D. 81

2 $(10 \times 4) - (3 \times 4) = ?$

- A. 12 B. 28
C. 40 D. 54

3 Which expression is equal to 14×3 ?

- A. $(3 \times 10) + (3 \times 4)$
B. $(3 \times 3) + (3 \times 10)$
C. $(14 \times 3) - (10 \times 3)$
D. $(14 \times 1) - (14 \times 3)$

4 Which equation shows the Distributive Property of Multiplication?

- A. $6 \times 3 = 3 \times 6$
B. $4 \times (3 \times 3) = (3 \times 3) \times 4$
C. $2 \times 7 = (1 + 7) \times (1 + 7)$
D. $2 \times 7 = (2 \times 10) - (2 \times 3)$

5 Which expression is equal to $(8 \times 2) + (5 \times 2)$?

- A. 13×2 B. 8×4
C. 5×4 D. 2×8

6 Patrick uses the Distributive Property to multiply 16×8 .

$(10 + 6) \times 8 = (10 \times 8) + (\underline{\hspace{2cm}})$

What should Patrick's next step be?
Which of these fills in the blank?

- A. $10 + 6$ B. 6×10
C. 6×8 D. 10×8

7 Which equation shows the Distributive Property of Multiplication?

- A. $4 \times 8 = 8 \times 4$
B. $7 \times 9 = (3 \times 9) + (4 \times 9)$
C. $3 \times (4 \times 3) = (4 \times 3) \times 3$
D. $5 \times 6 = (5 \times 3) \times (5 \times 3)$

8 Which two expressions are equal to 15×4 ?

- A. $(5 \times 4) - (4 \times 4)$
B. $(5 \times 4) + (4 \times 4)$
C. $(10 \times 4) + (5 \times 4)$
D. $(10 \times 5) - (4 \times 5)$
E. $(15 \times 4) + (1 \times 4)$
F. $(20 \times 4) - (5 \times 4)$

9 Naira has a bookcase with three shelves. Each shelf has 18 books. Which expression can Naira use to determine the total number of books on the bookcase?

- A. $(6 \times 3) + (3 \times 3)$
B. $(9 \times 3) - (9 \times 3)$
C. $(9 \times 3) + (9 \times 3)$
D. $(18 \times 3) - (1 \times 3)$

10 Darius travels 16 miles roundtrip each time he visits his mother. He visits his mother five days a week. Which expression can be used to find the number of miles Darius travels to visit his mother in a week?

- A. $(5 \times 8) + (5 \times 8)$
B. $(5 \times 8) - (5 \times 8)$
C. $(5 \times 4) + (5 \times 4)$
D. $(5 \times 4) - (5 \times 4)$

11 Sharon buys two bunches of bananas. There are seven bananas in each bunch. How many bananas does Sharon buy?

Sharon uses the Distributive Property to multiply: $2 \times (4 + 3)$. First, she multiplies 2×4 . Then she multiplies 2×3 . What should Sharon's next step be?

- A. Multiply 8×6 .
B. Add $8 + 6$.
C. Multiply 5×6 .
D. Add $5 + 6$.

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- 12 Diego buys nine planks of wood for a project. Each plank costs \$7. Which equation shows how much money Diego spends on wood?
- A. $(10 \times 7) - (1 \times 7) = 63$
B. $(10 \times 7) + (1 \times 7) = 77$
C. $(9 \times 4) + (9 \times 5) = 81$
D. $(9 + 4) \times (9 + 3) = 156$
- 13 Lucia sets up chairs for a workshop. She puts the chairs in six rows of 12 and uses the equation $(6 \times 10) + (6 \times 2) = ?$ to find the total number of chairs. How many chairs does Lucia set up for the workshop?
- A. 48 chairs B. 60 chairs
C. 66 chairs D. 72 chairs
- 14 Jim, a barista, serves 49 customers per hour. He works in five-hour shifts. Jim wants to know how many customers he serves in a shift. Which expression could Jim use to solve the problem?
- A. $(50 \times 5) + (1 \times 5)$
B. $(50 \times 5) - (1 \times 5)$
C. $(49 + 5) \times (1 + 5)$
D. $(49 - 5) \times (1 \times 5)$
- 15 Elena runs 13 laps around a track. It takes her four minutes to run each lap. How many minutes does Elena spend running around the track?
- Elena uses the Distributive Property to multiply: $(10 + 3) \times 4$. First, she multiplies 10×4 . What should Elena's next step be?
- A. Multiply 3×4 . B. Add $3 + 4$.
C. Multiply 4×10 . D. Add $40 + 12$.
- 16 Yuri is painting the interior walls of a house. He needs three gallons of paint for each room. Which equation can be used to find the number of gallons of paint Yuri needs to paint six rooms?
- A. $(3 \times 6) + (3 \times 6) = 36$
B. $(1 \times 6) + (3 \times 6) = 36$
C. $(3 \times 3) + (3 \times 3) = 18$
D. $(3 \times 6) - (1 \times 6) = 18$
- 17 Arlo installs seven pipes in one hour. After working for eight hours, he wonders how many pipes he has installed. Arlo uses the Distributive Property to multiply 7×8 . Which equation shows how Arlo solves the problem?
- A. $(7 + 4) + (7 + 4) = 22$
B. $(7 + 4) \times (7 - 4) = 33$
C. $(7 \times 10) - (7 \times 2) = 56$
D. $(7 \times 10) + (7 \times 2) = 56$
- 18 Amitola makes beaded necklaces. She uses 12 beads on each necklace. How many beads does Amitola need to make eight necklaces? Which two expressions can be used to solve the problem?
- A. $(12 \times 8) - (1 \times 8)$
B. $(10 \times 8) + (2 \times 8)$
C. $(10 \times 8) - (2 \times 8)$
D. $(6 \times 8) + (6 \times 8)$
E. $(6 \times 8) - (6 \times 8)$
F. $(4 + 8) + (8 + 8)$
- 19 Skyla spends \$6 every month on a music app subscription. She has paid for eight months. To find how much she has paid in all, Skyla uses the equation $(6 \times 5) + (6 \times 3) = ?$. How much has Skyla paid in all?
- A. \$48
B. \$38
C. \$30
D. \$20
- 20 Harleen buys four containers of disinfecting wipes. Each container has 36 wipes. Harleen wants to know how many wipes she is buying. To solve the problem, she uses the equation $(30 \times 4) + (6 \times 4) = ?$. How many wipes does Harleen buy in all?
- A. 44 wipes
B. 120 wipes
C. 130 wipes
D. 144 wipes

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Practice 17

Use the Distributive Property to Multiply

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1. C. $(3 \times 7) + (3 \times 2) = 21 + 6 = 27$
2. B. $(10 \times 4) - (3 \times 4) = 40 - 12 = 28$
3. A. 14×3 can be restated as $3 \times (10 + 4)$, which equals $(3 \times 10) + (3 \times 4)$.
4. D. 2×7 can be restated as $2 \times (10 - 3)$, which equals $(2 \times 10) - (2 \times 3)$.
5. A. $(8 \times 2) + (5 \times 2)$ can be restated as $2 \times (8 + 5)$, which equals 13×2 .
6. C. Patrick needs to multiply the second number in parentheses by 8: 6×8 .
7. B. 7×9 can be restated as $(3 + 4) \times 9$, which equals $(3 \times 9) + (4 \times 9)$.
8. C, F. 15×4 can be restated as $(10 + 5) \times 4$, which equals $(10 \times 4) + (5 \times 4)$. 15×4 can also be restated as $(20 - 5) \times 4$, which equals $(20 \times 4) - (5 \times 4)$.
9. C. 18×3 can be restated as $(9 + 9) \times 3$, which equals $(9 \times 3) + (9 \times 3)$.
10. A. 5×16 can be restated as $5 \times (8 + 8)$, which equals $(5 \times 8) + (5 \times 8)$.
11. B. After Sharon multiplies each number in parentheses by 2, she needs to add the products.
12. A. 9×7 can be restated as $(10 - 1) \times 7$. $(10 \times 7) - (1 \times 7) = 70 - 7 = 63$; Diego spends \$63 on wood.
13. D. $(6 \times 10) + (6 \times 2) = 60 + 12 = 72$; Lucia sets up 72 chairs.
14. B. 49×5 can be restated as $(50 - 1) \times 5$, which equals $(50 \times 5) - (1 \times 5)$.
15. A. After Elena multiplies the first number in parentheses by 4, she needs to multiply the second number in parentheses by 4: 3×4 .
16. C. 3×6 can be restated as $3 \times (3 + 3)$. $(3 \times 3) + (3 \times 3) = 9 + 9 = 18$; Yuri needs 18 gallons of paint.
17. C. 7×8 can be restated as $7 \times (10 - 2)$. $(7 \times 10) - (7 \times 2) = 70 - 14 = 56$; Arlo has installed 56 pipes.
18. B, D. 12×8 can be restated as $(10 + 2) \times 8$, which equals $(10 \times 8) + (2 \times 8)$. 12×8 can also be restated as $(6 + 6) \times 8$, which equals $(6 \times 8) + (6 \times 8)$.
19. A. $(6 \times 5) + (6 \times 3) = 30 + 18 = 48$; Skyla still has to pay \$48.
20. D. $(30 \times 4) + (6 \times 4) = 120 + 24 = 144$; Harleen buys 144 wipes.