

Key
Week 12 HW



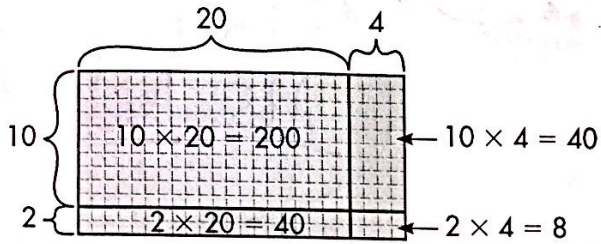
Homework & Practice 4-5

Arrays and Partial Products

Another Look!

One way to find the product of 12×24 is to use an array.

Draw an array on a grid. Divide the array into tens and ones for each factor. Find the number of squares in each smaller rectangle. Then add the numbers of squares in the four smaller rectangles.



$$\begin{array}{r} 8 \\ 40 \\ 40 \\ + 200 \\ \hline 288 \end{array}$$

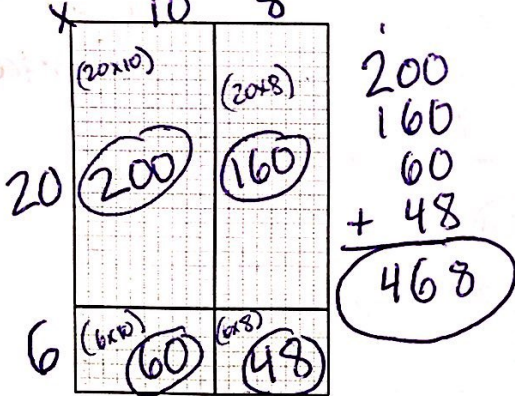
So, $12 \times 24 = 288$.

The array shows the four partial products.

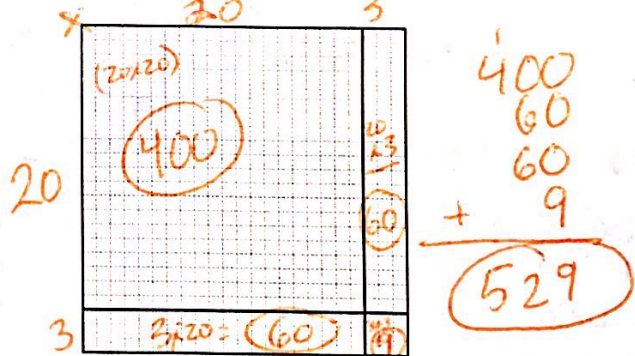


For 1-4, find each product. Use the arrays drawn on grids to help.

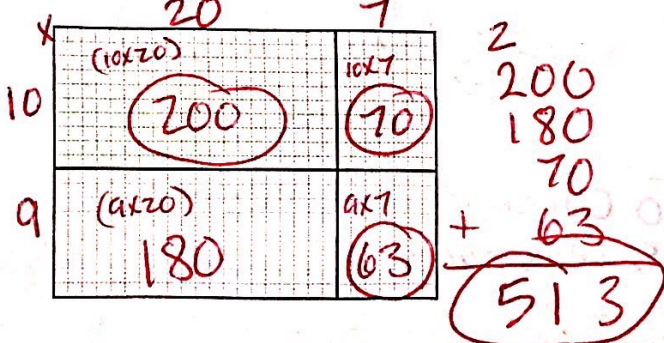
1. 26×18



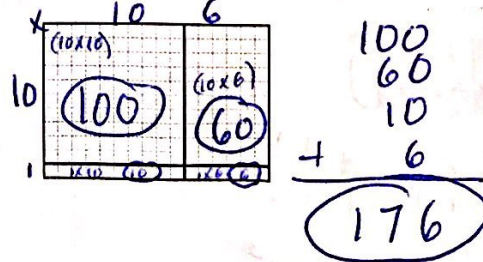
2. 23×23



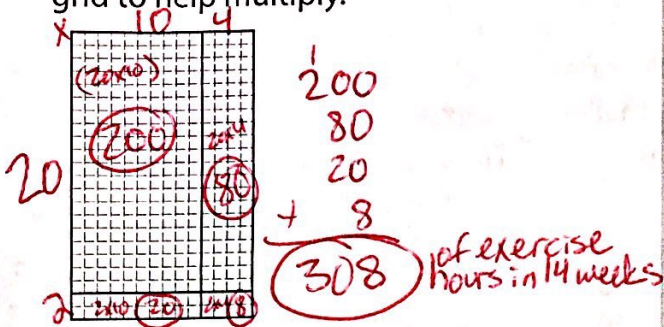
3. 19×27



4. 11×16



5. Barb exercises for 22 hours each week. How many hours does she exercise in 14 weeks? Use the array drawn on the grid to help multiply.



6. Teri used an algorithm to find the product below. Is Teri's answer reasonable? Explain.

$$\begin{array}{r} \cancel{1,296} \\ \times \quad \cancel{2} \\ \hline 42 \\ 630 \\ 1,400 \\ \hline \cancel{2,800} \\ 4,872 \end{array}$$

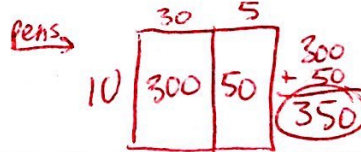
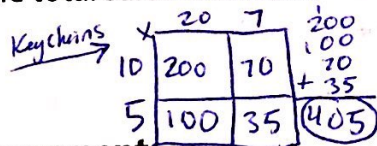
No, Teri's answer is not reasonable because...

SHOW MS. N!

7. Higher Order Thinking The prices at Nolan's Novelties store are shown at the right. If 27 boxes of neon keychains and 35 boxes of glow-in-the-dark pens were sold, what were the total sales in dollars?

Item	Price per Box
Neon keychains	\$15
Glow-in-the-dark pens	\$10

Handwritten calculations for problem 7:

$$\begin{array}{l} 27 \times 15 = 405 \\ 35 \times 10 = 350 \\ \hline \$755 \text{ total} \end{array}$$


Common Core Assessment

8. Write to explain how you can break apart 16×34 into four simpler multiplication problems.

I can break apart 16×34 into four simpler multiplication problems by...

SHOW MS. N!

9. Write to explain how you can use an array to break apart 18×12 to find the product and check if the product is reasonable.

I can use an array to break apart 18×12 by...

SHOW MS. N!

To check if the product is reasonable, I...

SHOW MS. N!

& Practice 4-4

Estimate: Use Compatible Numbers

Another Look!

A roller coaster has 38 seats for passengers. The roller coaster runs 24 times each hour. About how many passengers can ride the roller coaster each hour?

Choose numbers close to 38 and 24 that you can multiply mentally.



Step 1

Choose compatible numbers.

24 is close to 25. 24×38
 38 is close to 40. 25×40

Step 2

Multiply the compatible numbers.

$25 \times 40 = 1,000$
 So, 24×38 is about 1,000.
 About 1,000 passengers can ride the roller coaster each hour.

For 1–16, estimate each product.

1. 23×12

23 is close to 25.

12 is close to 10
 $25 \times 10 = 250$

2. 24×31

24 is close to 25.

31 is close to 30
 $25 \times 30 = 750$

3. 19×24

$20 \times 20 = 400$
 $20 \times 25 = 500$

4. 51×17

$50 \times 20 = 1000$
 $50 \times 15 = 750$

5. 82×78

$80 \times 80 = 6400$

6. 12×26

$12 \times 25 = 300$
 $10 \times 30 = 300$
 $12 \times 30 = 360$
 $10 \times 25 = 250$

7. 24×62

$20 \times 60 = 1200$
 $25 \times 60 = 1500$

8. 48×29

$50 \times 30 = 1500$

9. 53×39

$50 \times 40 = 2000$
 $55 \times 40 = 2200$

10. 51×23

$50 \times 20 = 1000$
 $50 \times 25 = 1250$

11. 53×54

$50 \times 50 = 2500$
 $55 \times 55 = 3025$

12. 68×39

$70 \times 40 = 2800$

13. 29×43

$30 \times 40 = 1200$
 $30 \times 45 = 1350$

14. 62×87

$60 \times 90 = 5400$
 $60 \times 85 = 5100$

15. 36×42

$40 \times 40 = 1600$
 $35 \times 40 = 1400$

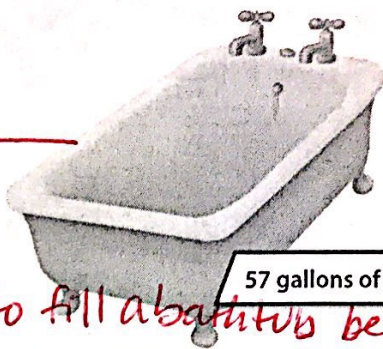
16. 91×77

$90 \times 80 = 7200$
 $90 \times 75 = 6750$



There is more than one way to estimate a product.

17. About how many gallons of water are used to refill the bathtub every day for 31 days? Explain. Show Ms. N!



31×57
 $\downarrow \quad \downarrow$
 $30 \times 60 = 1800$
 or $30 \times 55 = 1650$

In 31 days, about _____ gallons are used to fill a bathtub because _____.

18. Vocabulary Use a vocabulary term to complete the definition.

Compatible Numbers are numbers that are easy to compute mentally.

19. A store sells about 45 gadgets a day, 7 days a week. About how many gadgets might the store sell in 4 weeks? Explain. Show Ms. N!

$45 \times (7 \times 4) =$
 45×28
 \downarrow
 $45 \times 30 = 1350$
 or $50 \times 30 = 1500$

In 4 weeks, the store might sell about _____ gadgets because _____.

20. Number Sense Nathan estimates 67×36 by finding 70×40 . Will Nathan's estimate be greater than or less than the actual product? Explain. Show Ms. N!

67×37
 $\downarrow \quad \downarrow$
 70×40
 or 65×35

Nathan's estimate will be _____ than the actual product because _____.

21. Higher Order Thinking What might you consider when deciding whether to use rounding or compatible numbers to estimate? Explain. Show Ms. N!

When deciding whether to use rounding or compatible numbers to estimate, I might consider...

Common Core Assessment

22. A tour guide leads groups of 26 people through a museum. She led 42 groups last year. Choose compatible numbers from the box to write two different estimates for the total number of people she led last year. Use each number one time.



26×42		
<u>25</u>	\times	<u>40</u> = <u>1,000</u>
<u>30</u>	\times	<u>45</u> = <u>1,350</u>
(25)	(30)	(40) (45) (1,000) (1,350)