



Homework & Practice 4-1

Mental Math: Multiply Multiples of 10

Another Look!

A kindergarten teacher wants to buy individual boxes of crayons for her students. Each box contains 50 crayons. How many crayons will she have if she buys 30 boxes of crayons?

Use a pattern to find 50×30 .

$$5 \times 3 = 15$$

$$50 \times 3 = 150$$

$$50 \times 30 = 1,500$$

$$\text{So, } 50 \times 30 = 1,500.$$

The kindergarten teacher will have 1,500 crayons.

You can multiply with mental math by using basic facts and place-value strategies.



For 1–12, use basic facts and place-value strategies to find each product.

$$1. \begin{array}{l} 2 \times 2 = 4 \\ 20 \times 2 = 40 \\ 20 \times 20 = 400 \end{array}$$

$$2. \begin{array}{l} 6 \times 3 = 18 \\ 60 \times 3 = 180 \\ 60 \times 30 = 1,800 \end{array}$$

$$3. \begin{array}{l} 5 \times 6 = 30 \\ 50 \times 6 = 300 \\ 50 \times 60 = 3,000 \end{array}$$

$$4. 30 \times 80 = 2,400$$

$$5. 60 \times 60 = 3,600$$

$$6. 50 \times 90 = 4,500$$

$$7. 30 \times 70 = 2,100$$

$$8. 70 \times 60 = 4,200$$

$$9. 40 \times 50 = 2,000$$

$$10. 10 \times 90 = 900$$

$$11. 40 \times 10 = 400$$

$$12. 10 \times 50 = 500$$

For 13–21, find the missing factor.

$$13. 10 \times 20 = 200$$

$$14. 40 \times 90 = 3,600$$

$$15. 50 \times 80 = 4,000$$

$$16. 70 \times 10 = 700$$

$$17. 30 \times 90 = 2,700$$

$$18. 50 \times 70 = 3,500$$

$$19. 80 \times 90 = 7,200$$

$$20. 20 \times 90 = 1,800$$

$$21. 40 \times 80 = 3,200$$

22. **Algebra** Ms. Marks records the number of words each typist can type in 1 minute. How many more words could the fastest typist type ~~x~~ (30 minutes) than the slowest typist? Use place-value strategies. Write and solve equations.

$(60 \times 30) - (40 \times 30) =$
 $1800 - 1200 =$

OR $(60 - 40) \times 30 =$
 $20 \times 30 =$

600 more words in 30 minutes

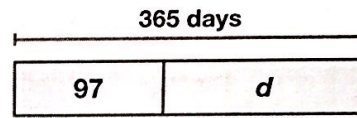
Typing Rates in 1 min	
Typist	Words
Lavon	50
Jerome	40
Charlie	60

Slowest Jerome : $40 \times 30 = 1200$
 Fastest Charlie : $60 \times 30 = 1800$

23. Amy says, "To find 50×20 , I multiply 5×2 and then place the total number of zeros in both factors at the end." Do you agree? Explain.

Show Ms. N!

24. **Algebra** If in one year a city recorded a total of 97 rainy days, how many of the days did it NOT rain? Write and solve an equation.



$97 + 268 = 365$

OR $365 - 97 = 268$

25. Name two 2-digit factors whose product is greater than 200 but less than 600.

Show Ms. N!

26. **Higher Order Thinking** For every 30 minutes of television airtime, there are 8 minutes of commercials. If 90 minutes of television are aired, how many minutes of commercials will there be?

$30 \times 3 = 90$

$8 \times 3 = 24$ minutes of commercials

© Common Core Assessment

27. The product of two factors is 7,200. If one of the factors is 90, what is the other factor?

$90 \times 80 = 7200$

- (A) 8,000
- (B) 800
- (C) 80
- (D) 8

28. Derek solved 1,400 math problems in 70 days. If Derek solved the same number of math problems each day, how many math problems did Derek solve each day?

- (A) 2
- (B) 20
- (C) 200
- (D) 2,000

$70 \times 20 = 1400$

Use basic facts to help find the missing factors.



Homework & Practice 4-2

Use Models to Multiply 2-Digit Numbers by Multiples of 10

Another Look!

You can use arrays, area models, or place-value blocks to help find the product of 20×14 .

20×14 means 20 groups of 14, or (20 groups of 10) + (20 groups of 4).

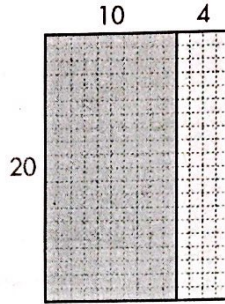
Add the partial products from the model.

20 groups of 10 = 200

20 groups of 4 = 80

$200 + 80 = 280$

So, $20 \times 14 = 280$.



20 groups of 10 = 200

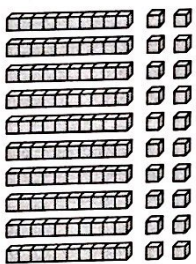
20 groups of 4 = 80

You can break apart numbers to multiply.



For 1-2, use the array to find each product.

1. 10×12



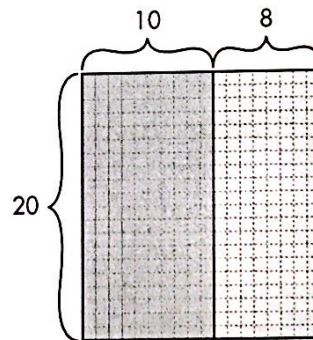
10 groups of 10 = 100

10 groups of 2 = 20

100 + 20 = 120

So, $10 \times 12 = 120$.

2. 20×18



20 groups of 10 = 200

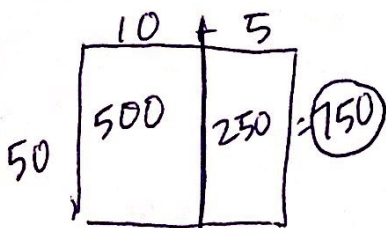
20 groups of 8 = 160

200 + 160 = 360

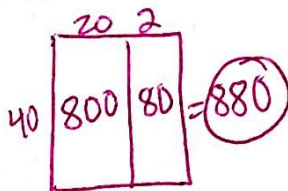
So, $20 \times 18 = 360$.

For 3-6, find each product. Draw an array or an area model to help.

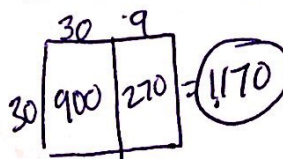
3. $50 \times 15 = 750$



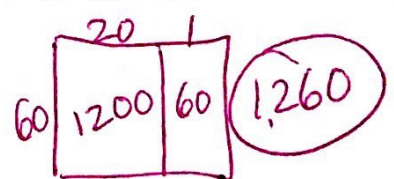
4. $40 \times 22 = 880$



5. $30 \times 39 = 1170$



6. $60 \times 21 = 1260$

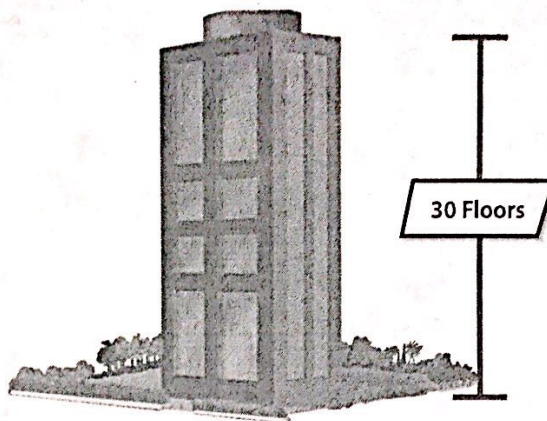


7. The height of each story of an apartment building is measured from the bottom of one floor to the bottom of the next floor. Each story has a height of 18 feet. How tall is the building?

$$30 \times 18 = (30 \times 10) + (30 \times 8)$$

$$300 + 240$$

$$540 \text{ feet}$$



8. © MP.1 Make Sense and Persevere
Marta exercises 30 minutes each day. Greg exercises 40 minutes each day. How many more minutes does Greg exercise than Marta in a month that has 31 days?

$$(40 - 30) \times 31 = 10 \times 31 = 310 \text{ more minutes}$$

OR $(40 \times 31) - (30 \times 31) = 1240 - 930 = 310 \text{ more minutes}$

9. A dentist orders 15 boxes of floss and 20 boxes of toothbrushes each month. Floss is sold 70 to a box and toothbrushes are sold 50 to a box. How many items does the dentist order each month?

$$(15 \times 70) + (20 \times 50)$$

$$1050 + 1000 = 2050 \text{ items each month}$$

10. Mrs. Harrigan ordered 30 boxes of glasses for her restaurant. Each box holds 16 glasses. She also ordered 30 boxes of plates. There are 25 plates in each box. How many glasses and plates did Mrs. Harrigan order altogether?

$$(30 \times 16) + (30 \times 25)$$

$$480 + 750 = 1,230 \text{ glasses and plates}$$

11. Higher Order Thinking Without multiplying, is the product of 45×10 or 50×10 greater? Explain.

Show MS.N!

© Common Core Assessment

12. Miranda says 30×26 is greater than 20×36 . Is she correct? Draw a model to explain if Miranda is correct.

You can draw an area model or an array to represent the problem.



$$\begin{array}{r|l} \times 20 & 6 \\ \hline 30 & 600 \end{array} \quad \begin{array}{r|l} & 180 \\ \hline & 780 \end{array}$$

$$\begin{array}{r|l} 30 & 6 \\ \hline 20 & 600 \end{array} \quad \begin{array}{r|l} & 120 \\ \hline & 720 \end{array}$$

explain to MS.N!