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Homework & Practice 4-10

Continue to Multiply by 2-Digit Numbers

Another Look!

An office building is 27 stories tall. Each story has 42 windows that need to be washed. How many windows need to be washed?

Find 27 × 42.

$$\begin{array}{r} {\scriptstyle 1}\\ 42\\ \times\ 27\\ \hline 294 \\ +\ 840 \\ \hline 1{,}134 \end{array}$$

294 ← Multiply by 7 ones

840 ← Multiply by 2 tens

1,134 ← Add the partial products

1,134 windows need to be washed.

The algorithm for multiplying by 2-digit numbers is an extension of the algorithm for multiplying by 1-digit numbers.

Remember to write a zero in the ones place when multiplying by the tens.

For **1–20**, find each product. Draw area models or use partial products as needed. Use estimation to check if your answer is reasonable.

1. $\begin{array}{r} 70 \\ \times\ 39 \\ \hline \end{array}$

2. $\begin{array}{r} 58 \\ \times\ 90 \\ \hline \end{array}$

3. $\begin{array}{r} 97 \\ \times\ 42 \\ \hline \end{array}$

4. $\begin{array}{r} 64 \\ \times\ 88 \\ \hline \end{array}$

5. $\begin{array}{r} 51 \\ \times\ 47 \\ \hline \end{array}$

6. $\begin{array}{r} 62 \\ \times\ 69 \\ \hline \end{array}$

7. $\begin{array}{r} 34 \\ \times\ 82 \\ \hline \end{array}$

8. $\begin{array}{r} 98 \\ \times\ 23 \\ \hline \end{array}$

9. $\begin{array}{r} 59 \\ \times\ 44 \\ \hline \end{array}$

10. $\begin{array}{r} 13 \\ \times\ 31 \\ \hline \end{array}$

11. $\begin{array}{r} 85 \\ \times\ 18 \\ \hline \end{array}$

12. $\begin{array}{r} 36 \\ \times\ 29 \\ \hline \end{array}$

13. 24 × 31

14. 62 × 48

15. 36 × 93

16. 41 × 11

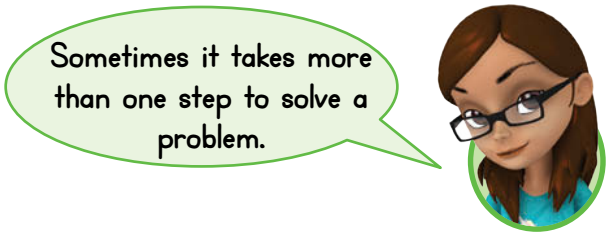
17. 21 × 22

18. 59 × 78

19. 43 × 37

20. 90 × 24

21. Admission to a science museum is $22 for an adult. The cost for a child is $5 less than the cost for an adult. What would be the total cost of admission for 12 adults and 15 children? Explain.



22. **Number Sense** Bags of potatoes weigh 35 pounds each. Cases of onions weigh 19 pounds each. Estimate which weighs more: 23 bags of potatoes or 32 cases of onions?

23. **Algebra** An average person in the U.S. eats about 17 gallons of popcorn each year. How many gallons of popcorn does the average person eat in 12 years? Write and solve an equation.

24. **Higher Order Thinking** How is using partial products to find the product of two 2-digit factors similar to how you have used partial products in the past? How is it different? Explain.

Common Core Assessment

25. A train is pulling 23 red cars and 36 blue cars. Each car has 32 boxes of freight. Which is the best estimate for the number of boxes on the train?

    Ⓐ 3,600 boxes
    Ⓑ 2,000 boxes
    Ⓒ 1,800 boxes
    Ⓓ 1,500 boxes

26. There are 13 bike racks at the park. Each bike rack holds 18 bicycles. There are 93 bikes in the racks already. How many more bikes can the bike racks hold? Which equation is correct?

    Ⓐ $(18 \times 93) - 13 = 121$ bikes
    Ⓑ $(13 \times 18) - 93 = 131$ bikes
    Ⓒ $(13 \times 18) - 93 = 141$ bikes
    Ⓓ $(13 \times 93) - 98 = 151$ bikes