

Multiplying Two-Digit by One-Digit

Break the two-digit number into tens and ones, multiply each piece separately, then add. This is the distributive property in action.

Break-Apart Method: 3×16

1. Split: $16 = 10 + 6$.
2. Multiply each piece: $3 \times 10 = 30$, $3 \times 6 = 18$.
3. Add the parts: $30 + 18 = 48$.

Key Concepts

1. Split the two-digit number into **tens** and **ones**: $34 = 30 + 4$.
2. Multiply the single digit by *each* piece separately.
3. Add the two partial products to get the final answer.
4. This is the *distributive property*: $a(b + c) = ab + ac$. You are turning one harder multiplication into two easier ones.

Worked Examples

① 3×16

 Split 16 into $10 + 6$. Multiply each piece by 3: $3 \times 10 = 30$ and $3 \times 6 = 18$. Add the partial products: $30 + 18 = 48$. So $3 \times 16 = 48$. The break-apart turned a harder fact into two easy ones.

 **Answer:** 48

② 5×34

 Split 34 into $30 + 4$. Multiply: $5 \times 30 = 150$ (because $5 \times 3 = 15$, add a zero) and $5 \times 4 = 20$. Add: $150 + 20 = 170$. So $5 \times 34 = 170$. The tens piece always uses the multiples-of-10 trick from the last lesson.

 **Answer:** 170

③ 7×28

 Split 28 into $20 + 8$. Multiply: $7 \times 20 = 140$ and $7 \times 8 = 56$. Add: $140 + 56 = 196$. So $7 \times 28 = 196$. Always double-check the addition step — partial products often have carries.

 **Answer:** 196

Practice Problems

Find each product. Use the break-apart method.

1. 2×14 _____

4. 5×13 _____

2. 3×25 _____

5. 6×24 _____

3. 4×18 _____

6. 7×15 _____

7. 8×12 _____

8. 3×36 _____

9. 4×27 _____

10. 6×19 _____

11. 9×14 _____

12. 5×48 _____

Study Tips

-  Always split the two-digit number into *tens and ones*, never into other pieces. The tens piece becomes a simple multiples-of-10 problem.
-  Stack your work neatly: write the partial products one above the other before you add. Lining up the digits prevents addition mistakes.
-  For a sanity check, estimate first. 7×28 is close to $7 \times 30 = 210$, so a final answer near 200 should feel right.

Word Problems

1. A box of markers has 24 markers. The teacher buys 6 boxes. How many markers does she have?

Answer: _____

2. There are 18 students in a class. Each student brings 4 pencils. How many pencils in all?

Answer: _____

Answer Key — with Friendly Explanations**Practice Problems**

1. $2 \times 14 = 2 \times 10 + 2 \times 4 = 20 + 8.$

 **Answer:** 28

2. $3 \times 25 = 3 \times 20 + 3 \times 5 = 60 + 15.$

 **Answer:** 75

3. $4 \times 18 = 4 \times 10 + 4 \times 8 = 40 + 32.$

 **Answer:** 72

4. $5 \times 13 = 5 \times 10 + 5 \times 3 = 50 + 15.$

 **Answer:** 65

5. $6 \times 24 = 6 \times 20 + 6 \times 4 = 120 + 24.$

 **Answer:** 144

6. $7 \times 15 = 7 \times 10 + 7 \times 5 = 70 + 35.$

 **Answer:** 105

7. $8 \times 12 = 8 \times 10 + 8 \times 2 = 80 + 16.$

 **Answer:** 96

8. $3 \times 36 = 3 \times 30 + 3 \times 6 = 90 + 18.$

 **Answer:** 108

9. $4 \times 27 = 4 \times 20 + 4 \times 7 = 80 + 28.$

 **Answer:** 108

10. $6 \times 19 = 6 \times 10 + 6 \times 9 = 60 + 54.$

 **Answer:** 114

11. $9 \times 14 = 9 \times 10 + 9 \times 4 = 90 + 36.$

 **Answer:** 126

12. $5 \times 48 = 5 \times 40 + 5 \times 8 = 200 + 40.$

 **Answer:** 240**Word Problems**

1. $6 \times 24 = 120 + 24 = 144$ markers.

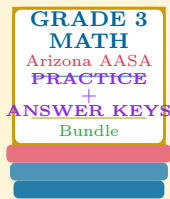
 **Answer:** 144 *markers*

2. $4 \times 18 = 40 + 32 = 72$ pencils.

 **Answer:** 72 *pencils*

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