

## Multiplying by Multiples of 10

Multiplying by 10, 20, 30, ... uses a tiny shortcut: do the basic fact, then add a zero on the end. The reason works because of place value.

Step	Example: $7 \times 30$
1. Use the basic fact (drop the zero).	$7 \times 3 = 21$
2. Add a zero to the end.	$21 \rightarrow 210$

### Key Concepts

1. A *multiple of 10* is a number that ends in 0: 10, 20, 30, 40, ..., 90.
2. To multiply by a multiple of 10, first multiply by the basic (non-zero) part. Then add one zero to the end of the product.
3. The trick works because  $30 = 3 \times 10$ . So  $7 \times 30$  is really  $7 \times 3 \times 10$ , which is  $21 \times 10 = 210$ .
4. The same idea works for any multiple of 10 — never just guess at the number of zeros, always do the basic fact first.

### Worked Examples

①  $7 \times 30$

 Drop the zero from 30 and do the basic fact:  $7 \times 3 = 21$ . Now bring the zero back by sticking it on the end: 210. So  $7 \times 30 = 210$ . (Why this works:  $30 = 3 \times 10$ , so  $7 \times 30 = 7 \times 3 \times 10 = 21 \times 10$ .)

 **Answer:** 210

②  $5 \times 60$

 Basic fact first:  $5 \times 6 = 30$ . Now add a zero: 300. Notice that the product already had a zero, and we added another —  $5 \times 6$  gave us 30, so the answer is 3 hundreds, or 300.

 **Answer:** 300

③  $8 \times 90$

 Basic fact:  $8 \times 9 = 72$ . Add a zero: 720. So  $8 \times 90 = 720$ . As a sanity check,  $8 \times 100$  would be 800, and 90 is a little less than 100, so 720 being a bit less than 800 looks right.

 **Answer:** 720

### Practice Problems

Find each product.

1.  $4 \times 20$  \_\_\_\_\_

2.  $3 \times 50$  \_\_\_\_\_

3.  $6 \times 40$  \_\_\_\_\_

4.  $9 \times 30$  \_\_\_\_\_

5.  $7 \times 60$  \_\_\_\_\_

6.  $8 \times 50$  \_\_\_\_\_

7.  $2 \times 90$  \_\_\_\_\_

8.  $5 \times 80$  \_\_\_\_\_

9.  $3 \times 70$  \_\_\_\_\_

11.  $6 \times 90$  \_\_\_\_\_

10.  $4 \times 60$  \_\_\_\_\_

12.  $9 \times 80$  \_\_\_\_\_

**Study Tips**

- ✎ Always do the basic fact first — do not let the zero distract you. The zero waits patiently at the end.
- ✎ If the basic fact already has a zero (like  $5 \times 6 = 30$ ), you end up with *two* zeros at the end. That is correct, not a mistake!
- ✎ Mentally estimate to check:  $7 \times 30$  should be roughly  $7 \times 30 \approx 7 \times 30$ . If you accidentally write 21, the missing zero will jump out at you.

**Word Problems**

1. A box holds 40 crayons. How many crayons are in 6 boxes?

Answer: \_\_\_\_\_

2. There are 30 desks in each classroom. If there are 8 classrooms, how many desks are there in all?

Answer: \_\_\_\_\_

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

1.  $4 \times 2 = 8$ , add a zero.

 **Answer:** 80

2.  $3 \times 5 = 15$ , add a zero.

 **Answer:** 150

3.  $6 \times 4 = 24$ , add a zero.

 **Answer:** 240

4.  $9 \times 3 = 27$ , add a zero.

 **Answer:** 270

5.  $7 \times 6 = 42$ , add a zero.

 **Answer:** 420

6.  $8 \times 5 = 40$ , add a zero. (Notice:  $40 \rightarrow 400$ , two zeros total.)

 **Answer:** 400

7.  $2 \times 9 = 18$ , add a zero.

 **Answer:** 180

8.  $5 \times 8 = 40$ , add a zero.

 **Answer:** 400

9.  $3 \times 7 = 21$ , add a zero.

 **Answer:** 210

10.  $4 \times 6 = 24$ , add a zero.

 **Answer:** 240

11.  $6 \times 9 = 54$ , add a zero.

 **Answer:** 540

12.  $9 \times 8 = 72$ , add a zero.

 **Answer:** 720

**Word Problems**

1.  $6 \times 40$ :  $6 \times 4 = 24$ , add a zero. 240 crayons.

 **Answer:** 240 *crayons*

2.  $8 \times 30$ :  $8 \times 3 = 24$ , add a zero. 240 desks.

 **Answer:** 240 *desks*

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