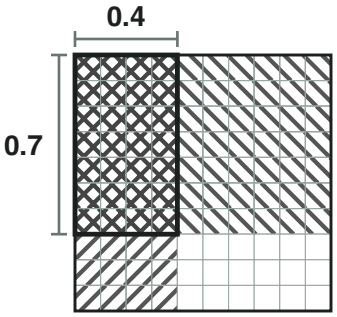
Multiplying and Dividing Decimals: How It Works

To multiply, count the decimal places. To divide, make the divisor a whole number.

1. Why tenths × tenths makes hundredths



The big square is 1 whole. Each small square is 1 **hundredth**.

0.4 of the square is 4 columns. **0.7** of the square is 7 rows. They cross in the dark box. It is 4 squares across and 7 squares down, so it has 4 × 7 = **28** small squares. That is 28 hundredths.

0.4 × 0.7 = 0.28

A tenth of a tenth is a hundredth. One decimal place and one more make **two** decimal places.

2. Multiply a decimal by a decimal: 2.3 × 1.6

1. Multiply

```
  23
× 16
 138
 230
 368
```

Leave out the points for now. Multiply 23 × 16.

2. Count the places

2.3 1 place

1.6 1 place

1 + 1 = 2 places

Count the digits after the point in **both** numbers.

3. Place the point

368

2 1

↓

3.68

Start at the right. Hop left 2 places. Put the point there.

4. Check

2.3 is about 2

1.6 is about 2

2 × 2 = 4

3.68 is close to 4 ✓

36.8 or 0.368 would be far from 4. The point is in the right place.

3. Divide a decimal by a whole number

```
  2.4 8
3 )7.4 4
 – 6
   1 4
 – 1 2
     2 4
   – 2 4
       0
```

1. Put a point in the answer first. It goes **straight above** the point in 7.44. Then ones stay over ones and tenths over tenths.

2. Now divide the same way you divide 744 by 3.

3. Check by multiplying: 2.48 × 3 = 7.44.

4. Divide by a decimal

2.4 ÷ 0.3

↓ × 10 ↓ × 10

24 ÷ 3 = 8

Multiply **both** numbers by 10. Now the divisor is a whole number.

Why the answer stays the same: 2.4 is 24 tenths and 0.3 is 3 tenths. Asking how many 3 tenths are in 24 tenths is the same as asking how many 3s are in 24.

Hundredths? Multiply both by 100: 1.5 ÷ 0.25 = 150 ÷ 25 = 6.

Watch out

Do not line up the points to multiply. That is for adding and subtracting. Line up the digits on the right. Count the places at the end.

Move the point in both numbers. 4.5 ÷ 0.5 is 45 ÷ 5 = 9. If you change only the 0.5, you get 4.5 ÷ 5 = 0.9. That is wrong.

Does the size make sense? 0.5 × 0.3 is half of 0.3, so it must be less than 0.3. The answer is 0.15. It cannot be 1.5.