Review: Divide Decimals by Decimals

1. Solve, thinking carefully about **how many times the divisor "fits into" the dividend**.

   Compare the problems within the same "box." What do you notice?

a. 120 ÷ 20 =	**e.** 28 ÷ 4 =
b. 12 ÷ 2 =	**f.** 2.8 ÷ 0.4 =
c. 1.2 ÷ 0.2 =	**g.** 0.28 ÷ 0.04 =
d. 0.12 ÷ 0.02 =	**h.** 0.028 ÷ 0.004 =

An important principle

Consider any division problem. If you multiply the *dividend* and the *divisor* by the same number, the *quotient* stays the same. The divisor still **"goes into"** the dividend as many times as before!

We can use this principle to transform each decimal division problem, such as 3.439 ÷ 5.6, into a problem *with the same answer*, but with a whole-number *divisor*. Once you have a whole number as a divisor, you can use long division.

Example. Solve 0.6 ÷ 0.003.

We multiply both numbers in the problem by 10 until the divisor is a whole number →

3 goes into 600 as many times as 0.003 goes into 0.6!

0.6 ÷ 0.003	(This is the original problem.)
6 ÷ 0.03	(The divisor is not a whole number yet.)
60 ÷ 0.3	(The divisor is not a whole number yet.)
600 ÷ 3	← Now the divisor is a whole number!

The last problem, 600 ÷ 3, is easy to solve. The answer is 200. So, the answer to 0.6 ÷ 0.03 **is also 200**.

Check by multiplying: 200 × 0.003 is 200 times 3 thousandths = 600 thousandths = 0.600 = 0.6. It checks.

2. Multiply mentally both the dividend and the divisor by 10 repeatedly until you get a new division problem where the divisor is a whole number. Then, divide.

a. 0.8 ÷ 0.02 ____ ÷ ____ ____ ÷ ____ = ____	**b.** 12 ÷ 0.4 ____ ÷ ____ = ____	**c.** 4.5 ÷ 0.05 ____ ÷ ____ ____ ÷ ____ = ____

3. Multiply mentally both the dividend and the divisor by 10, 100, or 1,000, so that you get a new division problem where the divisor is a whole number. Then, divide.

a. 1.6 ÷ 0.04 ____ ÷ ____ = ____	**b.** 2.6 ÷ 0.2 ____ ÷ ____ = ____	**c.** 36 ÷ 0.009 ____ ÷ ____ = ____
d. 0.6 ÷ 0.003 ____ ÷ ____ = ____	**e.** 5.4 ÷ 0.009 ____ ÷ ____ = ____	**f.** 0.5 ÷ 0.005 ____ ÷ ____ = ____