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 1. 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. In your head, multiply 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. In your head, multiply both the dividend and the divisor by 10, 100, or 1,000 to make 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 _____ ÷ _____ = _____