

Dividing Decimals by Decimals

To divide a decimal by a decimal, first change the problem to a new problem with a whole number divisor. Then move the point in the dividend the same number of places that you moved the point in the divisor. Study the example carefully.

EXAMPLE $4.374 \div 0.03 =$

STEP 1 Move the decimal point in the divisor to the right as far as it will go.

$$0.03 \overline{)4.374}$$

STEP 2 Move the decimal point in the dividend the same number of places that you moved the decimal point in the divisor.

$$0.03 \overline{)4.374}$$

STEP 3 Bring the decimal point up above its new position and divide.

$$0.03 \overline{)4.374} \quad \begin{array}{r} 145.8 \\ \hline \end{array}$$

When you move the decimal point in both the divisor and the dividend, you get a new problem that has the same answer. This is easier to understand with whole numbers.

Think about the problem $12 \div 4 = 3$. If you multiply both the divisor and the dividend by 10, you get the problem $120 \div 40 = 3$, which has the same answer.

Divide.

1. $0.8 \overline{)7.68}$

$0.7 \overline{)26.6}$

$0.6 \overline{)0.42}$

$0.4 \overline{)2.76}$

2. $4.1 \overline{)1.148}$

$9.2 \overline{)128.8}$

$5.3 \overline{)4.399}$

$3.2 \overline{)0.288}$

Rewrite each problem and divide.

3. $0.882 \div 0.06 =$

$0.5404 \div 0.28 =$

$453.75 \div 0.75 =$

$6.656 \div 0.52 =$

4. $1.17 \div 0.9 =$

$0.888 \div 3.7 =$

$5.92 \div 0.16 =$

$1.334 \div 0.46 =$

Sometimes you need to add zeros in a problem in order to have enough places to move the decimal point.

EXAMPLE 2 $4.8 \div 0.08 =$

STEP 1 Move the decimal point in the divisor two places to the right.

$$0.08 \overline{)4.8}$$

STEP 2 To move the decimal point two places to the right in the dividend, add one zero.

$$0.08 \overline{)4.80}$$

STEP 3 Bring the decimal point up and divide.

$$0.08 \overline{)4.80} \quad \mathbf{60.}$$

Divide.

5. $0.007 \overline{)5.32}$

$0.009 \overline{)4.32}$

$0.003 \overline{)8.1}$

$0.008 \overline{)77.12}$

6. $0.016 \overline{)212.8}$

$0.025 \overline{)0.1}$

$0.091 \overline{)65.52}$

$0.68 \overline{)57.8}$

Rewrite each problem and divide.

7. $0.78 \div 0.0024 =$

$42.84 \div 0.0006 =$

$1.683 \div 0.0018 =$

$15.184 \div 0.0073 =$

8. $\frac{156.8}{0.32} =$

$\frac{1,381.5}{0.45} =$

$\frac{4.48}{0.008} =$

$\frac{558.6}{0.06} =$

9. $\frac{0.522}{8.7} =$

$\frac{0.3933}{0.19} =$

$\frac{145.44}{3.6} =$

$\frac{0.11648}{0.64} =$