Division with Decimals   Name __Solutions__
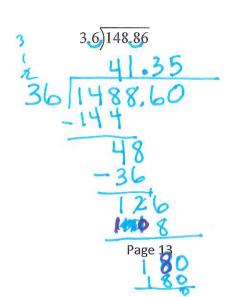
Decimal Dividends and Whole Number Divisors

1) Do long division as if there were no decimal point. You can write extra zeros after the last digit in the dividend and keep dividing until there is no remainder.

2) Place the decimal point in the answer directly above the decimal point in the problem.

3) Divide, writing as many extra zeros as you need after the last digit in the dividend. Place the decimal point in the quotient directly above the new decimal point in the dividend.

1. Divide.

$$
\begin{array}{r}
.16 \\
3\overline{)0.48} \\
\underline{3} \\
18 \\
\underline{-18} \\
0
\end{array}
$$

.492

$$
\begin{array}{r}
.492 \\
5\overline{)2.460} \\
\underline{20}\downarrow \\
46 \\
\underline{-45}\downarrow \\
10 \\
\underline{-10} \\
0
\end{array}
$$

$$
\begin{array}{r}
.57 \\
12\overline{)6.84} \\
\underline{-60}\downarrow \\
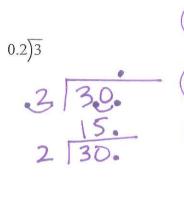84 \\
\underline{-84} \\
0
\end{array}
$$

Decimal Divisors

1) Move the decimal point in the divisor to the right until the divisor is a whole number.

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

3) Divide, writing as many extra zeros as you need after the last digit in the dividend. Place the decimal point in the quotient directly above the new decimal point in the dividend.

2. Divide.

$$0.07\overline{)21}$$

$$
\begin{array}{r}
.07\overline{)21.00} \\
300. \\
7\overline{)2100.} \\
\underline{-21} \\
0
\end{array}
$$

$$0.15\overline{)0.327}$$

$$
\begin{array}{r}
2.18 \\
15\overline{)32.70} \\
\underline{-30} \\
27 \\
15 \\
120 \\
\underline{-120} \\
0
\end{array}
$$

$$3.6\overline{)148.86}$$

$$
\begin{array}{r}
41.35 \\
36\overline{)1488.60} \\
\underline{-144} \\
48 \\
\underline{-36} \\
126 \\
\underline{108} \\
180 \\
\underline{180} \\
0
\end{array}
$$

Repeating Decimals

3. Divide and write the answer both as a repeating decimal and rounded to the nearest hundredth

$0.2\overline{)3}$

$.3\overline{)30.}$

$\underline{15.}$

$2\overline{)30.}$

$6.\overline{6}$

6.666

$.3\overline{)20.0}$
$\underline{18}$
20
$\underline{18}$
20

or 6.67

$0.11\overline{)3800}$

345.454545

$11\overline{)3800.0}$
$\underline{-33}$
50
$\underline{-44}$
60
55
$\underline{}$
50
$\underline{-44}$
60

$345.\overline{45}$

≈ 345.45

Powers of Ten

4. Divide.

$10\overline{)0.1234}$

$.01234$

$10\overline{).12340}$
$\underline{-10}$
23
20
$\underline{}$
34
30
$\underline{}$
40

$100\overline{)0.1234}$

$1000\overline{)0.1234}$

$0.1\overline{)0.1234}$

1.234

$1\overline{)1.234}$
$\underline{1}$
02
2
$\underline{}$
03
04

$0.01\overline{)0.1234}$

$0.001\overline{)0.1234}$

What do you notice about dividing decimals by powers of ten?