3.5 Dividing Decimals by a Whole Number

Step 1: Set up equation as long division ignoring the decimal.

Step 2: Solve using long division.

Step 3: Estimate using benchmarks to round.

(Remember numbers less than 4 round down, numbers 5 and greater round up).

Step 4: Use your estimate to appropriately place the decimal.

Ex. Divide 16.64 by 4

$$
\begin{array}{r}
0\,4.\,6 \\
4\,\overline{)16\,64} \\
-16 \\
\hline
0\,6 \\
-4 \\
\hline
24
\end{array}
$$

← ignore the decimal

$$
\begin{array}{r}
5 \\
4\,\overline{)20}
\end{array}
$$

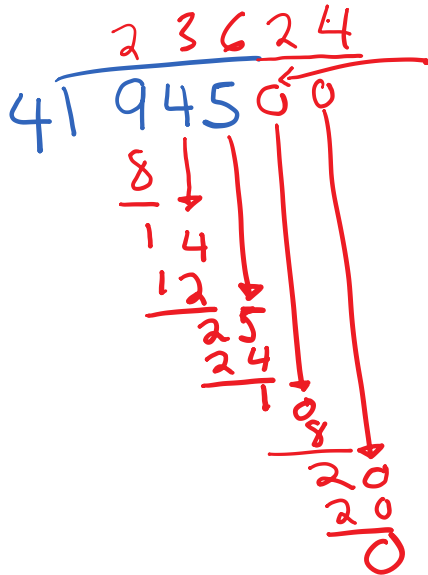Ex. Jacob paid $52.48 to get 4 new shirts. How much did each shirt cost?

$$
\begin{array}{r}
13.12 \\
4\,\overline{)5248} \\
4 \\
\hline
12 \\
12 \\
\hline
04 \\
04 \\
\hline
08 \\
8 \\
\hline
0
\end{array}
$$

$$
\begin{array}{r}
12. \\
4\,\overline{)50.0} \\
4 \\
\hline
10 \\
8 \\
\hline
20 \\
20
\end{array}
$$

p. 106 # 2-4 odd, 5-10

3.6 Dividing Decimals: Exact and Approximate Quotients

Eg. Four hikers want to share 9.45-L jug of water equally. How much water will each hiker get?

2 3 6 2 4
4 ⟌ 9 4 5 0 0
  8
  1 4
  1 2
    2 5
    2 4
      1 8
      2 0
      2 0
        0

since there is
a remainder,
write a 0
in the dividend
so we can continue
to divide

Estimate
9.45 → 9

4 ⟌ 9

→ the answer
will be a little
more than 2

∴ put the decimal
point in the
quotient so that
the whole # is close to
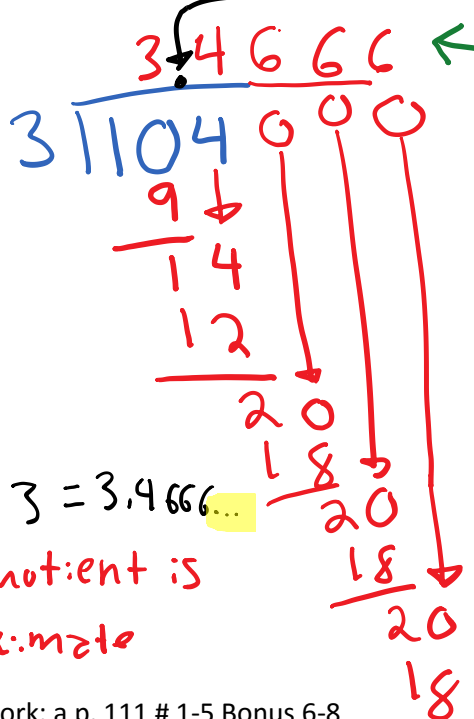2

9.45
├───┼───┤
9   10

$9.45 \div 4 = 2.3625$

This quotient is exact

Each hiker got about 2.36L.

Eg. One morning, the hikers travelled 10.4 km in 3 hours. About how far did the hikers travel in 1 hr?

3 . 4 6 6 6
3 ⟌ 1 0 4 0 0 0
    9
    1 4
    1 2
      2 0
      1 8
        2 0
        1 8
          2 0
          1 8

sometimes you will
never stop dividing,
no matter how many
zeros you write
in the dividend

SO, $10.4 \div 3 = 3.4666...$

This quotient is
approximate

Estimate
10.4 → 10

├───┼───┤
10   10.4   11

3 ⟌ 10 will be
close to 3,
∴ place decimal

Homework: a p. 111 # 1-5 Bonus 6-8