

Lesson 7 : Dividing Decimals

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e.x. → \$ / lb  
 give e.x. → chicken @ 5 \$ / lb

Order is important!

Recall + Label:

e.x. What's 6 \$ divided by 3 friends?  
 6 \$ dividend  
 3 friends divisor  
 2 \$ per friend quotient  
 2 \$ / friend

division  
 ↓  
 unit price (one unit)  
 ∴ 2 lb of chicken cost  $\frac{2 \text{ lb} \times 5 \$}{1 \text{ lb}}$   
 $\frac{2 \text{ lb} \times 5 \$}{1 \text{ lb}}$

dividend 6 ÷ divisor 3 = 2 ← quotient total cost → 10 \$

dividend 6 / 3 = 2 ← quotient  
divisor

divisor 3 ) 6 ← quotient  
dividend

pre  
 You do handout  
 Just page 1/2  
 Pay attention to units

Exercise 7.1

- Translate the following sentences into the three algebraic expressions that represent division. Circle the units of each #.
  - What's 12 cookies divided by 3 siblings? 4 cookies per sibling.  
 \_\_\_ ÷ \_\_\_ = \_\_\_      \_\_\_ = \_\_\_  
 unit measurement
  - What's 10 metres squared of land shared by 25 people? Each person gets 0.4 metres squared of land / person.  
 \_\_\_ ÷ \_\_\_ = \_\_\_      \_\_\_ = \_\_\_
  - 6 friends divide 3 dollars. How much money does each friend get? 0.50 \$/friend.  
 \_\_\_ ÷ \_\_\_ = \_\_\_      \_\_\_ = \_\_\_
  - You earn \$45 for 3 hours of work. What is your hourly wage? That is, how much money (\$) do you make per hour? 15 \$/hr.

# Dividing a Decimal by an Integer

(dividend)

(divisor)

ex. - 5 cans of soup sells for \$1.75.

• How much does 4 cans cost?

WANT: <sup>total</sup> cost of 4 cans  
(concrete/made-up example)

TOOL: 
$$\text{Total cost} = \# \text{ of items} \times \text{unit cost per item}$$

you buy 2 coats @ 200\$/each

INFO: # of items = 4 cans      unit cost per item = ?

WANT: unit cost per item = ?

TOOL: 
$$\text{Unit cost per item} = \frac{\text{given cost} / \text{a certain \# of items}}{\# \text{ of items}}$$

INFO: Given cost = 1.75\$ / 5 cans      # of items = 5 cans ✓  
do ants

$$\begin{array}{r} 0.35 \\ 5 \overline{) 1.75} \\ \underline{15} \phantom{0} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

• how many 5 times into 1 = 0  
• how many 5 times into 17 = 3  
• remainder into 17

step i: Divide the integral part of dividend by divisor

$$1.75 = 1 \frac{3}{4}$$

step ii put decimal in same spot as dividend but continue division  
↳ natural # of dividend

∴ 1 can costs \$0.35

total cost of 4 = 4 x 0.35

$$\begin{array}{r} 2 \\ 35 \\ \underline{4} \\ 140 \end{array}$$

∴ 4 cans cost \$1.40

You do / we do:

$$0.639 \quad \frac{0}{0} \quad 9$$

pre  
You do handout pg 3.

Dividing Two Decimals

$$3.897 \div 0.45$$

↳ impossible  
 ↳ change to equivalent integers @ least in denominator  
 →  
step 1:

$$\frac{3.897 \times 100}{0.45 \times 100}$$

$$\frac{389.7}{45}$$

$$\begin{array}{r}
 45 \overline{) 389.7} \\
 \underline{360} \phantom{.7} \\
 297 \\
 \underline{270} \\
 270 \\
 \underline{270} \\
 0
 \end{array}$$

8.66  
 ↓ ↓  
 remainder

45 into 3?  
 45 into 38?  
 45 into 389?  
 trick:  
 50/100/150/200/250  
 300/350/400

$$\begin{array}{r}
 3 \\
 45 \\
 \hline
 7 \\
 315
 \end{array}$$

You do:

$$- 5.02 \div - 9.6$$

$$\begin{array}{r} 5.02 \\ \hline 9.6 \end{array} \quad \begin{array}{l} \times 10 \\ \times 10 \end{array}$$

$$\approx 0.523$$

⚡ you can stop  
long division  
@ the thousandth

(it's not accurate though)  
fractions are better  
and calculators.

Recall:

long division,  
just signs  
but apply  
law of signs

$$+ + = +$$

$$- - = +$$

$$+ - = -$$