



Multiplying Decimals

Math-
Ms.Harrietha



Warm-up

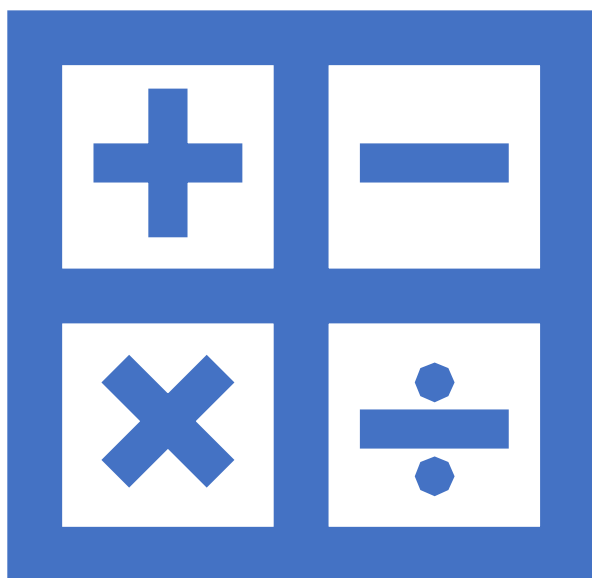
Add or Subtract the following:

$$12.36 + 8.65$$

$$9.24 + 14.89$$

$$18.92 - 12.87$$

$$21.35 - 9.36$$



We are going to begin with estimating multiplication of decimals.

What does estimate mean?

To estimate means to “round”. In previous grades you would have been told to take a guess but now we are going to learn how to use different strategies to estimate.

What does the word “**about**” mean?

There is a symbol we use which means about:

Estimating

2 estimating strategies:

1) **Front-end Estimation:** simply chop off all digits and only use the place value of the front digit.

Ex: $2.73 \times 8 \approx 2 \times 8 \approx 16$

2) **Decimal Benchmarks:** Find which number the Decimal is closer to...

Ex: $2.73 \times 8 \approx 3 \times 8 \approx 24$

Explore



This is a table showing some of the world's top roller coasters.

The table shows the distance of one lap.

Roller Coaster	Country	Length (km)
The Beast	USA	2.243
The Steel Dragon	Japan	2.479
The Corkscrew	Canada	0.732
The Dragon Khan	Spain	1.269
The Mighty Canadian Minebuster	Canada	1.167
The Ultimate	England	2.268

What To Do:

- Choose the coasters you would like to try.
- Estimate the distance you would travel if you went on it 8 times?
- Calculate the exact distance you would travel if you went on it 8 times.
- Repeat for 2 other coaster you would like to try.

Entrance Slip

Using a piece of loose leaf estimate each product
Which strategy did you use? Tell if your estimate is an overestimate or an underestimate.

- **7.01 X 9**
- **3.8 X 7**
- **11.85 X 5**
- **19.925 X 4**

Warm-up

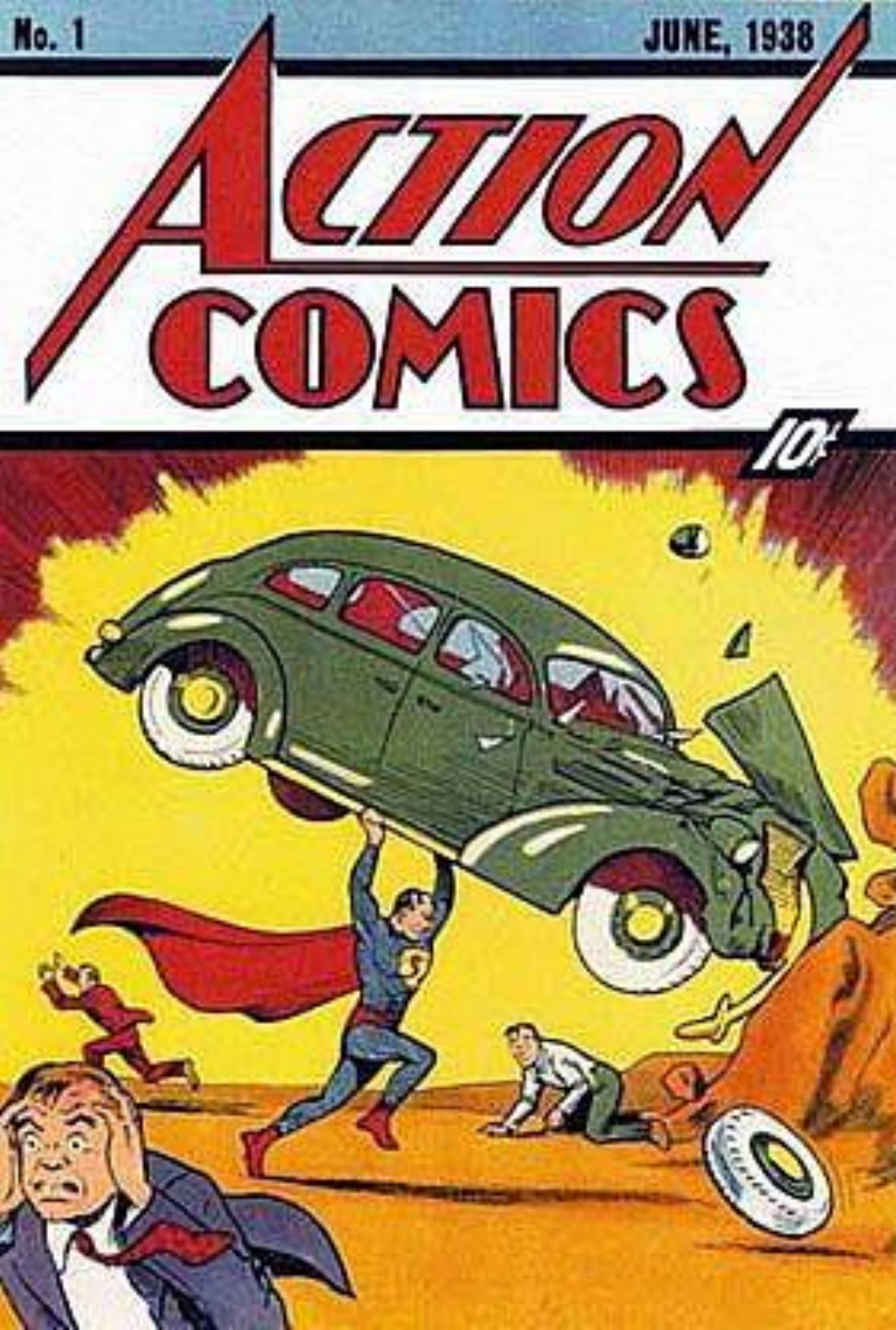
Use estimation to place the decimal point.

$$2.34 \times 6 = 1404$$



$$9 \times 4.35 = 3915$$

$$\$10.85 \times 7 = \$7595$$



Estimation- Warm-up

Jason collects comic books. Recently he bought 9 comic books priced At \$1.89 each.

- About how much money did
- Jason for pay altogether for the comics?



Estimation-Warm up

- Janice wants to buy 3 kg's of hamburger for her BBQ.
- It costs \$3.79 a kg. She only has \$12 in her purse.
About how much money will she have to pay altogether for the hamburger?
- Does she have enough cash?

There are two strategies you can choose from when multiplying decimals.

Traditional; estimate first; remove the decimals and multiply as you would whole numbers then put the decimal back into the answer using your estimate to help.

Box method; estimate first and multiply as you would whole numbers using the box method and use your estimate to place the decimal in the answer.

Strategy 1- Using the traditional method using front-end estimation

$$2 \times 1.4$$

Estimate:

$$\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$$

Strategy 2- Box Method

2 x 1.4

Estimate:

Practice using your method of choice

$$3 \times 2.7$$

$$2.1 \times 5$$

$$6 \times 5.7$$

$$2.5 \times 2$$



You will need a calculator.

Copy and complete the multiplication statements.

Use a calculator to find the products in the 2nd and 3rd columns.

$1 \times 1 =$	$0.1 \times 1 =$	$0.01 \times 1 =$
$1 \times 2 =$	$0.1 \times 2 =$	$0.01 \times 2 =$
$1 \times 3 =$	$0.1 \times 3 =$	$0.01 \times 3 =$
$1 \times 4 =$	$0.1 \times 4 =$	$0.01 \times 4 =$
$1 \times 5 =$	$0.1 \times 5 =$	$0.01 \times 5 =$
$1 \times 6 =$	$0.1 \times 6 =$	$0.01 \times 6 =$
$1 \times 7 =$	$0.1 \times 7 =$	$0.01 \times 7 =$
$1 \times 8 =$	$0.1 \times 8 =$	$0.01 \times 8 =$
$1 \times 9 =$	$0.1 \times 9 =$	$0.01 \times 9 =$

- Describe the patterns you see.
- Insert a column to the right.
Use your patterns to predict the entries in this new column.

Multiplying Decimal numbers less than 1 by a whole number

- 1) Estimate first
- 2) Choose your strategy: traditional or box method
- 3) Multiply as you would whole number
- 4) Use your estimate to place your decimal

Example:

$$0.25 \times 3$$

$$\text{estimate: } 0 \times 3 = 0$$

Your final answer will be less than zero because you underestimated.

