



# Chapter 1

## Multiply and Divide Decimals

*BIG IDEA: How do you multiply and divide decimals?*

# 1-1A Estimate Products

- Main Idea:
- Estimate the product of decimals and judge the reasonableness of results.

# Steps for Rounding Decimals

- 1) Underline the number in the tenths place
- 2) If that number is between 0 - 4, keep the ones place the same (round down).
- 3) If that number is between 5 - 9, round the ones place number up.
- 4) Drop the decimals part of the number.

# Examples: Round to the nearest whole number.

1) 32.8

2) 17.09

3) 13.5

4) 0.20

5) 1.18

6) 0.7



# Steps to Estimate Products

- 1) Round the decimal number.
- 2) Multiply.

# Examples: Estimate the products.

1)  $12.3 \times 8$

2)  $13 \times 17.8$

3)  $27.8 \times 3$

4)  $131 \times 1.4$

5)  $53.2 \times 4$

**Classwork:** In your notebook, round to the nearest whole number:

1) 132.15

5) 38.52

2) 68.2

6) 0.61

3) 49.68

7) 1.20

4) 17.14

8) 1328.09



# Homework:

## Workbook p. 1





# 1-1C Multiply Decimals by Whole Numbers

Main Idea: Find the product of decimals and whole numbers.

CCSS 6.NS.3

# Steps:

- 1) Put the longer number on top of the shorter number.
- 2) Multiply.
- 3) Count the number of decimal places in the factors. That's how many decimal places are in your answer.
- 4) Check your answer.

Does it make sense?

# Examples: Multiply

1)  $0.23 \times 12$

2)  $3 \times 0.18$

3)  $15 \times 3.4$



Classwork:

Whiteboards



# Homework:

p. 34 #2 - 26 even

# 1-1E Multiply Decimals by Decimals

Main Idea: Multiply decimals by decimals

CCSS 6.NS.3

# Steps:

1) Line up numbers to the RIGHT.

DO NOT line up the decimal points.

2) Multiply (ignore the decimal points).

3) Count TOTAL numbers behind the decimal point in BOTH numbers.

4) Move decimal point that many times to the left in your answer.

# Examples:

1)  $3.6 \times 0.05$

2)  $1.4 \times 0.067$

3)  $0.2 \times 16.1$



# Real world problem:

A car gets 28.45 miles per gallon. If the car's gas tank holds 11.5 gallons, how far can the car travel on one full tank of gas?



# Homework:

p. 40 #11 - 27 odd, 28, 35

# 1-2A: Estimate Quotients

Main Idea: Estimate quotients of decimals and judge the reasonableness of the results.

# Vocabulary:

Compatible numbers - numbers that are easy to divide in your head.

Ex:

- 1) 30 and 10
- 2) 6 and 3
- 3) 10 and 5
- 4) 18 and 2

# Estimate by Rounding:

Round the dividend (number being divided)

Ex:  $8.75 \div 3$



**\* Round to the nearest compatible number**

# Examples:

$$\text{Ex 2) } 49.3 \div 7$$

$$\text{Ex 3) } 95.7 \div 25$$

Round the divisor (number you're dividing by)

Round the dividend (number being divided)

Ex:  $32 \div 3.9$



**\* Round to the nearest compatible number**

More examples:

Ex 2)  $54 \div 9.5$

Ex 3)  $99 \div 10.75$





Remember:

Round to the nearest compatible number,  
(it won't always be the nearest whole  
number).



# Homework:

p. 43 #1 - 17



# 1-2C: Divide Decimals by Whole Numbers

Main Idea: Divide decimals by whole numbers.

CCSS 6.NS.2, 6.NS.3

# Rules:

1) Divide like normal (ignore the decimal point)

2) Place the decimal point straight up into your answer (quotient)

# Examples:

1)  $6.8 \div 2$

2)  $3.5 \div 7$

# More Examples:

$$3) 7.7 \div 14$$

$$2) 5.6 \div 8$$



# Homework:

p. 52 #2-20 even, 34-40



# 1-2E: Divide Decimals by Decimals

Main Idea: Divide decimals by decimals.

CCSS 6.NS.2, 6.NS.3



# Steps:

1) Move the decimal point in the divisor to the right to make it a whole number.

2) Move the decimal point in the dividend the same number of times to the right.

3) Rewrite the division problem.

4) Divide the new problem.

# Examples:

1)  $1.71 \div 0.9$

3)  $0.0063 \div 0.07$

2)  $54.4 \div 1.7$

4)  $52 \div 0.4$



# Homework:

## Workbook p. 11



# 1-3A: Exponents

Main Idea: Represent numbers using exponents.

CCSS 6.EE.1, 6.EE.2b

# Vocabulary:

- **Base** - the number being multiple by itself ('big number')
- **Exponent** - the 'little' number that tells how many times we multiply the base by itself
- **Powers** - a number that can be rewritten using a base and exponent

Example: Write as a base to an exponent.

1)  $6 \times 6 \times 6 \times 6 \times 6 =$

2)  $5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 =$

3)  $3 \times 3 =$

Example: Rewrite as the product of factors.

1)  $5^3 =$

2)  $1.4^2 =$


3)  $1^6 =$



# Homework:

p.64 #13-33, 41, 43, 45





# 1-3B: Multiply by Powers of 10

Main Idea: Multiply decimals mentally by powers of 10.

# Multiply by powers of 10 **greater** than 1

Steps:

- 1) **Count** the number of zeros in the power of 10.
- 2) **Move** the decimal point to the **RIGHT** that many times.

# Examples:

1)  $0.35 \times 100 =$

2)  $7.9 \times 10^4 =$

3)  $5.98 \times 100,000 =$

# Multiply by powers of 10 **less** than 1

Steps:

- 1) **Count** the number of digits behind the decimal point in the power of 10.
- 2) **Move** the decimal point to the **LEFT** that many times.

# Examples:

1)  $7.2 \times 0.001 =$

2)  $3 \times 0.01 =$

3)  $15.1 \times 0.0001 =$



# Homework:

p.68 #9-27 odd, 28, 29, 31, 32, 34-40



# 1-3C: Divide by Powers of 10

Main Idea: Divide decimals mentally by powers of 10.

# Divide by powers of 10 **greater** than 1

Steps:

1) **Count** the number of zeros

2) **Move** the decimal point to the **LEFT**  
that many times.



# Examples:

$$1) 22.7 \div 1000 =$$

$$2) 139.2 \div 10$$

# Divide by powers of 10 **less** than 1

Steps:

- 1) **Count** the number of digits behind the decimal point.
- 2) **Move** the decimal point to the **RIGHT** that many times.

# Examples:

$$1) 0.02 \div 0.1 =$$

$$2) 68.93 \div 0.0001 =$$



# Homework:

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# Chapter 1 Test