Important Concepts . . .

Preview Review

Mathematics Grade 7

W1 - Lesson 2: Decimal Numbers

Important Concepts of Grade 7 Mathematics

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W1 - Lesson 2 ..... Decimal Numbers
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W3 - Lesson 5 .....Transformations
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Materials Required

Math set
Calculator

No Textbook Required

This is a stand-alone course.

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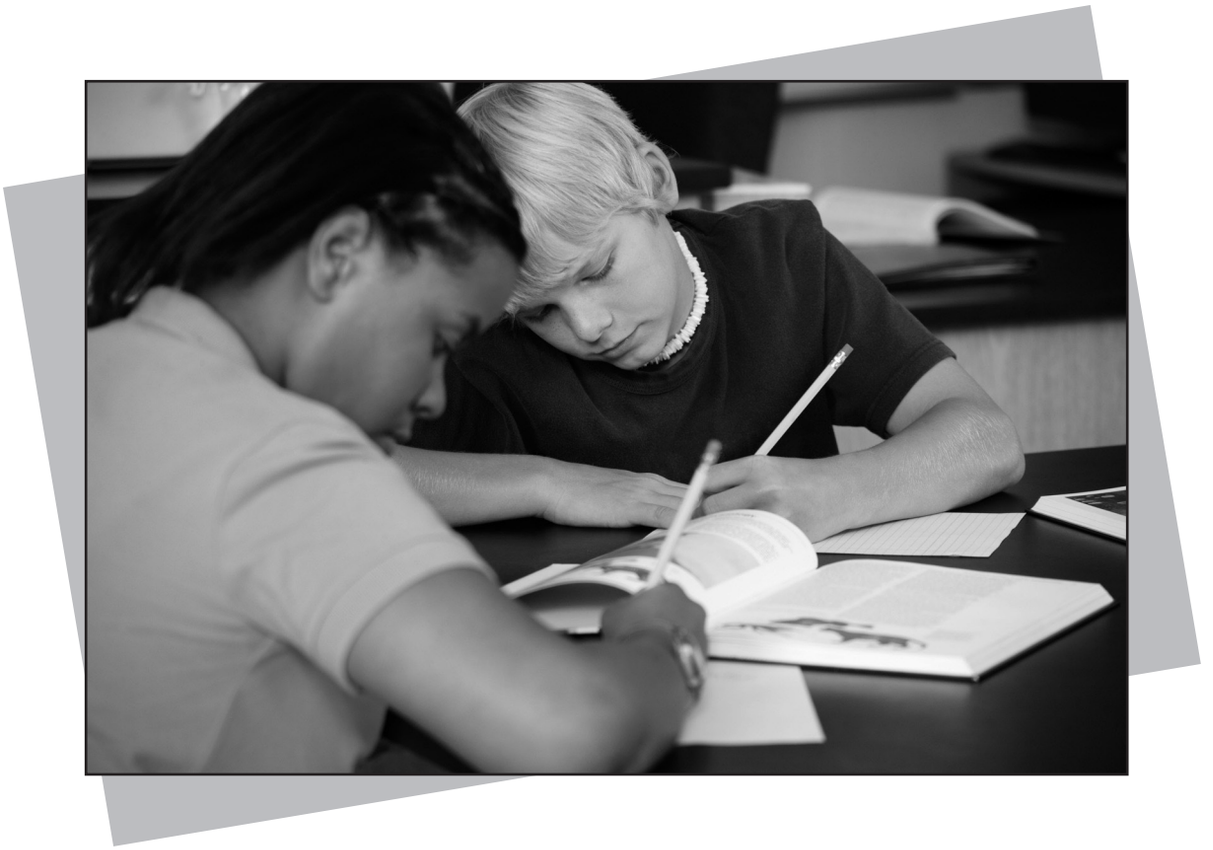
Preview/Review Concepts for Grade Seven Mathematics



W1 – Lesson 2:

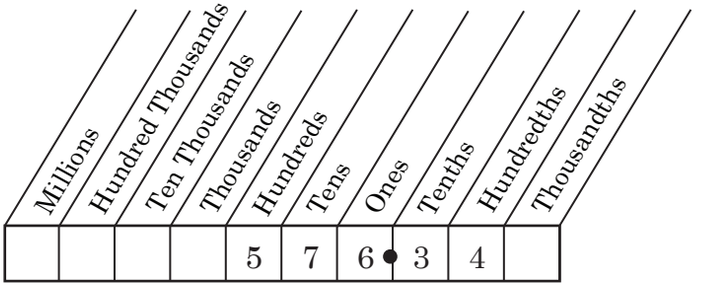
Decimal Numbers

W1 – Lesson 2: Decimal Numbers

Review:

- *I can write a number using a place value chart.*
- *I can write a decimal number in standard and expanded forms.*

Base 10 Value System



or

H	T	O	Tth	Hth
5	7	6	3	4

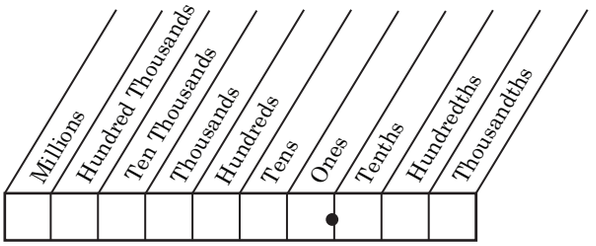
Standard form: the usual form of a number, such as 576.34

Expanded form: a number expressed as the sum of products; the digit times its place value
(5 × 100) + (7 × 10) + (6 × 1) + (3 × 0.1) + (4 × 0.01)

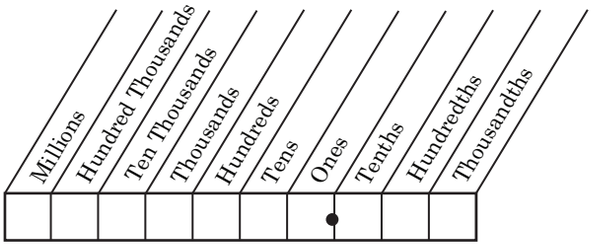
Practice

Write the following numbers using a place value chart.

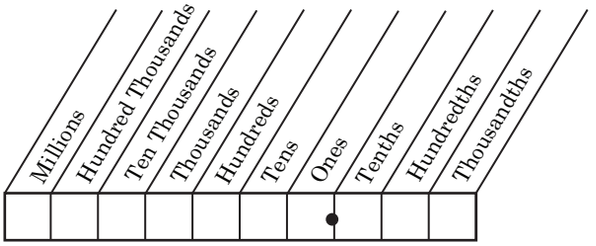
a. 46.5



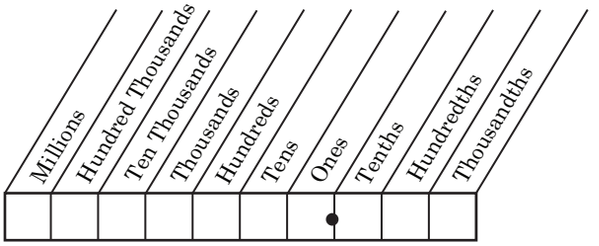
b. (7 × 0.01) + (5 × 0.001)



c. (2 × 100) + (7 × 1) + (9 × 0.01)



d. 106.04



Objective:

- *I can estimate the solution by rounding or using front end digits.*

Joe wants to build a fence around a garden with edges that measure 1.92 m, 2.83 m, 3.14 m, and 2.71 m. Estimate the total length of the fence.

Estimating by Rounding

Estimate by rounding to the nearest whole number.

	1.92	2
	2.83	3
	3.14	3
+	2.71	3
		11

Rounding suggests the fence is about 11 m long.

Practice

Estimate by rounding to the nearest whole number.

a. 7.1 + 2.2 = ____ + ____ = ____

b. 8.7 + 1.6 = ____ + ____ = ____

c. 6.4 + 4.5 = ____ + ____ = ____

d. 9.9 + 8.3 = ____ + ____ = ____

e. 7.4 + 2.8 = ____ + ____ = ____

Estimating using Front-end Digits

Practice

Use front-end digits to estimate.

a. 7.1 + 2.2 = ____ + ____ = ____

b. 8.7 + 1.6 = ____ + ____ = ____

c. 6.4 + 4.5 = ____ + ____ = ____

d. 9.9 + 8.3 = ____ + ____ = ____

e. 7.4 + 2.8 = ____ + ____ = ____

Estimate by using the digits before the decimal.

	1.92	1
	2.83	2
	3.14	3
+	2.71	2
		8

Front-end digits suggest the fence is about 8 m long.

Objective:

- *I can add two or more decimal numbers.*

To add decimal numbers, line up the digits in each decimal place.

Example 1: 0.45 + 9.31

$$\begin{array}{r} 0.45 \\ +\ 9.31 \\ \hline 9.76 \end{array}$$

Add the hundredths, tenths, then ones.

Example 2: At the cafeteria Paul got a sandwich for $2.76, fries were $1.94, and a drink was $1.27. How much did Paul spend on lunch?

$$\begin{array}{r} 2.76 \\ +\ 1.94 \\ +\ 1.27 \\ \hline \$\ 5.97 \end{array}$$

Add the hundredths, tenths, then ones

Practice

Find the sum.

a. $\begin{array}{r} 8.45 \\ +\ 5.03 \\ \hline \end{array}$

b. $\begin{array}{r} 12.5 \\ +\ 4.17 \\ \hline \end{array}$

c. $\begin{array}{r} 1.38 \\ +\ 2.2 \\ \hline \end{array}$

d. $\begin{array}{r} 21.7 \\ +11.02 \\ \hline \end{array}$

e. 7.11 + 5.2 =

f. 9.84 + 0.56 =

g. 6.42 + 3.71 =

h. 23.43 + 6.4 =

i. 1.56 + 8.12 + 10.3 =

fj 4.23 + 7.62 + 0.02 =

Objective:

- *I can subtract two or more decimal numbers.*

To subtract decimal numbers, line up the digits in each decimal place.

Example 1: 5.79 - 2.31

```
  5.79
- 2.31
------
  3.48
```

Subtract the hundredths, tenths, then ones.

Example 2: George has $7.71 to spend on a new shirt. He likes a shirt that costs $11.99. How much money would he need to borrow to have enough to buy the shirt?

```
  11.99
-  7.71
-------
$ 4.28
```

Subtract the hundredths, tenths then ones.

He will need to borrow $4.28.

Practice

Find the difference.

a. 8.45 − 2.16

b. 10.8 − 3.57

c. 9.38 − 4.2

d. 46.7 − 12.2

e. 6.75 – 4.25 =

f. 8.21 – 4.15 =

g. 9.2 – 8.5 =

h. 4.88 – 1.99 =

i. 7.45 – 2.96 – 0.6 =

fj 8.06 – 1.99 – 3.12 =

Objective:

- *I can multiply decimal numbers.*

To multiply decimal numbers, follow these steps:

1. Multiply the numbers as if they are whole numbers.
2. Count the total number of digits behind the decimal in the factors.
3. Place the decimal that many digits from the end of the product.

There is no need to line up decimals when multiplying as you do when adding or subtracting.

Example: Jean's mom agrees to purchase 15 concert tickets online for Jean and her friends. If the tickets cost $7.50 each, what is the total cost of the tickets?

$$\begin{array}{r} 7.50 \\ \times\ 15 \\ \hline 3750 \\ +\ 750 \\ \hline 112.50 \end{array}$$

Count 2 decimal places in the factor 7.50; move the decimal 2 places in the product.

The tickets cost $112.50.

Practice

Find the product.

a. $\begin{array}{r} 8.45 \\ \times\ 21 \end{array}$

b. $\begin{array}{r} 3.8 \\ \times\ 15 \end{array}$

c. $\begin{array}{r} 7.42 \\ \times\ 11 \end{array}$

d. $\begin{array}{r} 0.72 \\ \times\ 8 \end{array}$

e. $3.75 \times 0.25 =$

f. $8.21 \times 1.2 =$

g. $9.3 \times 5 =$

h. $4.88 \times 14 =$

Objective:

- *I can divide decimal numbers.*

To divide decimal numbers, follow these steps:

1. Count the decimal places in the divisor.
2. Move the decimal in both the divisor and dividend as many places as it takes to make the divisor a whole number.
3. Divide.

Remember to keep the decimals of the quotient and dividend lined up.

Example: Mary has a 3.96 m rope, but she wants to cut it into 2.2 m pieces. How many pieces will she get of the length she wants?

2.2 ⟶ 22
3.96 ⟶ 39.6

Mary will be able to get only 1 piece of rope of the length she wants.

Practice

Find the product.

a. $8\overline{)96.4}$ b. $12\overline{)16.8}$ c. $11\overline{)4.07}$ d. $15\overline{)351.75}$

e. $11.06 \div 1.4 =$ f. $1.7 \div 0.5 =$

Objective:

- *I can solve problems using the correct order of operations.*

Order of Operations: a set of rules everyone uses when calculating so they all get the same answer

Think BEDMAS :
(left to right in an expression)
B – brackets
E – exponents
D –division
M –multiplication
A – addition
S – subtraction

Daisy won a draw at the mall. To claim her prize she needs to answer a skill-testing question: "2 × 4 + 10 × 3". If Daisy answers 54, does she get the prize?

Following order of operations:

2 × 4 + 10 × 3 Multiply first (2 × 4) and (10 × 3),
= 8 + 30 then add (8 + 30).
= 38
No, Daisy does not get the prize.

Practice

Calculate using the correct order of operation.

a. 15 - 12.6 ÷ 3 × 2 - 1.5

b. 12 ÷ 3 - 4 × 0.5 + 1

e. 71 - 3 × 7 + 1.5

f. 49 - 14 ÷ 2 × 5 + 7

Turning word equations into number equations:

"Multiply 4.1 by 6, subtract 2. Divide by 4."

First part is easy: 4.1×6

"Subtract 2" *Still okay.*

We know we have to multiply first anyway. $4.1 \times 6 - 2$

"Divide by 4" *What are we dividing by 4?*

If we write 4.1 x 6 – 2 ÷ 4, only the 2 will be divided.

Because there is a period after the "2", use brackets"

Now, it's everything else first,
and then the final answer divided by 4.

$$(4.1 \times 6 - 2) \div 4$$
$$(24.6 - 2) \div 4$$
$$12.3 \div 4$$
$$3.1$$

Practice

Write a number equation from the word equation, and then calculate using the correct order of operations.

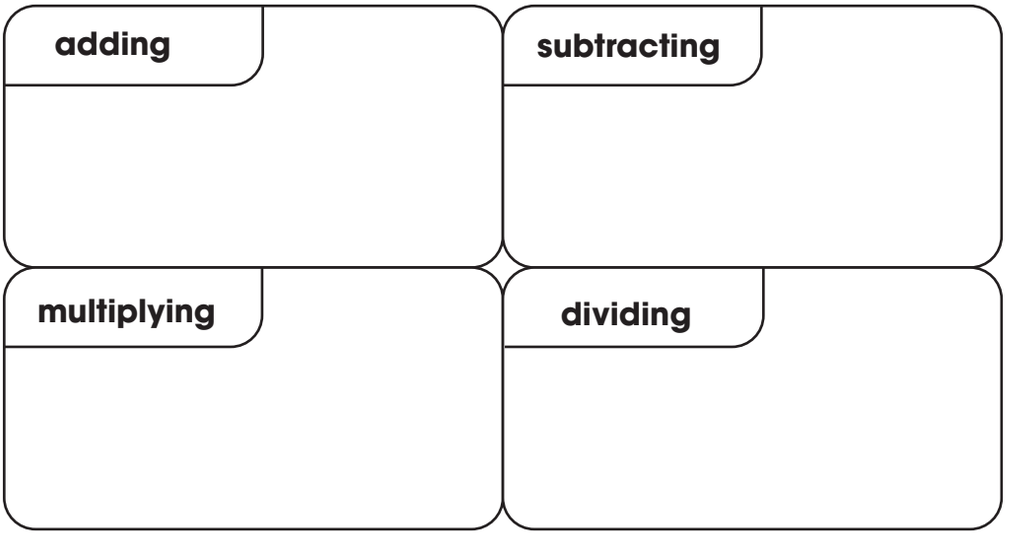
a. Multiply 7.2 by 2, add 1.6. Subtract from 24.

b. Divide 45 by 5. Add to the product of 0.5 and 3.5.

Summary and Practice:

- *Using what you learned answer the following questions*

1. In your own words, write the most important step needed to perform the operation when using decimal numbers.



2. Complete the table.

	Estimation by Rounding to the nearest whole number	Estimation by Front-End Digits	Solution
a. 2.4 + 7.89			
b. 4.33 + 6.95			
c. 5.98 - 0.69			
d. 9.56 - 2.43			
e. 6.87 + 0.39 - 2.1			
f. 908 - 1.62 + 6.24			

3. Place the decimal correctly in the product.

   a. $41.23 \times 23.95 = 9\ 8\ 7\ 4\ 5\ 8\ 5$

   b. $7.83 \times 4.8 = 3\ 7\ 5\ 8\ 4$

   c. $0.2 \times 28 = 5\ 6$

   d. $3.2 \times 9.3 = 2\ 9\ 7\ 6$

4. Divide.

   a. $1.6 \div 0.4 =$

   b. $12.5 \div 0.25 =$

   c. $4.2 \div 0.7 =$

   d. $0.072 \div 0.08 =$

5. Calculate using the correct order of operations.

   a. $7 + (2.05 \times 2 - 1.1)$

   b. $4 \times (5.6 - 3) - 1.4$

   c. $(9.8 - 4) \times (4.5 + 5.5)$

   d. $2\ \times 3.1 + 3\ \times 2.1$

6. Greg and Mark ran 400 m. Greg ran it in 81.37 s. Mark ran it in 82.61 s. How many seconds faster was Greg than Mark?

7. A bag of chips costs $1.79. How much would 8 bags of chips cost?

8. Six students are holding hands to make the longest line they can. Their arm spans are 1.64 m, 1.78 m, 1.58 m, 1.63 m, 1.76 m, and 1.70 m. How long is their line?

9. Glenda is putting a fence around her garden. She needs 12.6 m of wire fence. She has three pieces already cut. They measure 1.7 m, 5.4 m, and 4.4 m. Does she have enough? If so, how much will she have left over? If not, how much more does she need?

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