

## 1-1 Comparing and Ordering Whole Numbers (Page 4)

Hundred Trillions	Ten Trillions	Trillions	Hundred Billions	Ten Billions	Billions	Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1	2	6	3	7	8	5	2	9	8	7	6	4	5	1

6,823,634,553

**Standard Form** = 6,823,634,553**Expanded Form** = 6,000,000,000 + 800,000,000 + 20,000,000 + 3,000,000 + 600,000 + 30,000 + 4,000 + 500 + 50 + 3**Word Form** = six billion, eight hundred twenty-three million, six hundred thirty thousand, five hundred fifty three

Sample Problems:

Standard Form	Expanded Form	Word Form
6,879		
	80,000 + 4,000 + 900 + 80 + 3	
		Four hundred sixteen thousand, four hundred thirty-three
8,079		

When comparing numbers using place value, be sure to line up vertically on top of one another. Start at the left and compare digits in the same place value position. Look for the first place where the values are different. Reminder, when they are asking for the greatest it means the biggest value. When they are asking for the least, they are asking for the smallest value.

<a href="#">Re-teach</a>	<a href="#">Worksheet A</a>	<a href="#">Worksheet B</a>	<a href="#">Worksheet C</a>
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## 1-2 Estimating with Whole Numbers (Page 8)

**Estimating by Rounding:**

Round to the given place value = 5 or above give it a shove – 4 or below let it go

Find the place value you are rounding to and look to the right. Follow the above rounding rule

Ex 1) 4,789 **Round to the thousands**Ex 2) 532 **Round to the tens****Estimate each sum or difference by rounding to the place value indicated:**Estimate 1<sup>st</sup> then add or subtract

Ex 1) 5,439 + 7,516 (thousands)

Ex 2) 62,167 – 47,511 (ten thousands)

**Estimate by using compatible numbers:**

Change one or both numbers before multiplying or dividing to make the operation easier  
Convert to numbers with zeros.

Ex 1)  $120 \div 65$

Ex 2)  $78 \times 5$

<a href="#">Re-teach</a>	<a href="#">Worksheet A</a>	<a href="#">Worksheet B</a>	<a href="#">Worksheet C</a>
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Date \_\_\_\_\_

**1-3 Exponents (Page 12)**

**Exponents:**

$7^3$  7 = base 3 = exponent

The exponent tells us how many times the base is multiplied by itself.

$7^3 = 7 \times 7 \times 7$

**Write each expression in exponential form:**

Ex 1)  $4 \times 4 \times 4$

Ex 2)  $9 \times 9 \times 9 \times 9 \times 9$

**Find the value of the numbers in exponential form:**

Ex 1)  $3^7$

Ex 2)  $6^4$

<a href="#">Re-teach</a>	<a href="#">Worksheet A</a>	<a href="#">Worksheet B</a>	<a href="#">Worksheet C</a>
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Date \_\_\_\_\_

**1-4 Order of Operations (Page 20)**

**Order of Operations:**

- P – Please – Parentheses
- E – Excuse – Exponents
- M – My – Multiplication (Left to right)
- D – Dear – Division
- A – Aunt – Addition
- S – Sally – Subtraction (Left to right)

Ex 1)  $9 + 12 \times 2$

Ex 2)  $4 \times 3^2 + 8 - 16$

Ex 3)  $8 \div (1 + 3) \times 5^2 - 2$

<a href="#">Re-teach</a>	<a href="#">Worksheet A</a>	<a href="#">Worksheet B</a>	<a href="#">Worksheet C</a>
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## 1-5 Mental Math (Page 24)

Properties of Math		
Property	Words	Math
<b>Commutative Property (Ordering)</b>	You can add or multiply numbers in any order	$18 + 9 = 9 + 18$ $15 \times 2 = 2 \times 15$
<b>Associative Property (Grouping)</b>	When you are only adding or only multiplying, you can group any of the numbers together	$(17 + 2) + 9 = 17 + (2 + 9)$ $(12 \times 2) \times 4 = 12 \times (2 \times 4)$
<b>Distributive Property</b>	When you multiply a number times a sum, you can: <ul style="list-style-type: none"> <li>○ Find the sum first then multiply or</li> <li>○ Multiply by each number in the sum and then add</li> </ul>	$6 \times (10 + 4) = 6 \times 14$ $= 84$  $6 \times (10 + 4) = (6 \times 10) + (6 \times 4)$ $60 + 24$ $= 84$

Ex 1) Using properties to add or multiply whole numbers

Evaluate  $12 + 4 + 18 + 46$ 

$$12 + 18 + 4 + 46$$

$$30 + 50$$

$$80$$

Ex 2) Evaluate  $5 \times 12 \times 2$ 

$$(5 \times 2) \times 12$$

$$10 \times 12$$

$$120$$

Ex 3) Using the distributive property to find each product

$$4 \times 23$$

$$4 \times (20 + 3)$$

$$(4 \times 20) + (4 \times 3)$$

$$80 + 12$$

$$92$$

Ex 4)  $8 \times 74$ 

$$8 \times (70 + 4)$$

$$(8 \times 70) + (8 \times 4)$$

$$560 + 32$$

$$592$$

1)  $13 + 9 + 7 + 11$

2)  $4 \times 16 \times 5$

3)  $5 \times 24$

4)  $3 \times 33$

[Re-teach](#)[Worksheet A](#)[Worksheet B](#)[Worksheet C](#)

**1-6 Choose the Method of Computation (Page 28)**

When choosing an appropriate method of computation:

- Figure out what the problem is asking
- What information do we need
- What information do we not need
- What operation are we going to perform to solve

Ex 1) The average temperature on earth is  $59^{\circ}\text{F}$ . The average temperature on Venus is  $867^{\circ}\text{F}$ . How much hotter is Venus's average temperature?

What are they asking? What information do we need? What information do we not need? What operation? How do you know?

Ex 2) Everyday about 120 tons of cosmic dust – debris from outer space – enter the earth's atmosphere. How many tons of cosmic dust enter the earth's atmosphere each year?

What are they asking? What information do we need? What information do we not need? What operation? How do you know?

<a href="#">Re-teach</a>	<a href="#">Worksheet A</a>	<a href="#">Worksheet B</a>	<a href="#">Worksheet C</a>
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**1-7 Find a Pattern (Page 31)**

Decide how the numbers change and by what operation. Do they double? Do you add 3 each time. It is 2 operations.

3, 15, 27, 39, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, .....

+12   +12   +12

Ex 1)

4, 15, 8, 19, 12, 23, 16, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Ex 2)

256, 128, 64, \_\_\_\_\_, 16, \_\_\_\_\_

Ex3)

1, 6, 2, 12, 4, \_\_\_\_\_, 8, 48, \_\_\_\_\_, 9

<a href="#">Re-teach</a>	<a href="#">Worksheet A</a>	<a href="#">Worksheet B</a>	<a href="#">Worksheet C</a>
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