

Instructions

Welcome! Today we will explore large numbers using base-10 blocks. Remember the value of each block:

- **Unit** = 1
- **Rod** = 10
- **Flat** = 100
- **Cube** = 1,000
- **Ten Thousand Rod** = 10,000
- **Hundred Thousand Flat** = 100,000

We will use these blocks to build (compose) and break down (decompose) numbers up to one million.

Examples

Example 1: Decomposing a Number

Let's break down the number **254,136** into base-10 blocks.

- **2** Hundred Thousand Flats (200,000)
- **5** Ten Thousand Rods (50,000)
- **4** Cubes (4,000)
- **1** Flat (100)
- **3** Rods (30)
- **6** Units (6)

Example 2: Composing a Number

What number is made from **7** Hundred Thousand Flats, **0** Ten Thousand Rods, **9** Cubes, **5** Flats, **8** Rods, and **2** Units?

$$700,000 + 0 + 9,000 + 500 + 80 + 2 = \mathbf{709,582}$$

Worksheet 1: Decomposing Numbers

For each number below, write how many of each base-10 block you would need to build it. The first one is done for you.

Number	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
Ex: 815,249	8	1	5	2	4	9
1. 472,185						
2. 98,621						
3. 603,572						
4. 120,045						
5. 7,933						
6. 999,999						
7. 515,151						
8. 380,007						
9. 44,044						
10. 750,190						
11. 202,020						
12. 83,406						

Worksheet 2: Building Numbers

Read the description of the base-10 blocks and write the number in its standard form on the line.

1. 5 Hundred Thousands, 8 Ten Thousands, 3 Thousands, 7 Hundreds, 2 Tens, 4 Ones = _____

2. 9 Ten Thousands, 1 Thousand, 6 Hundreds, 5 Tens, 8 Ones = _____

3. 4 Hundred Thousands, 0 Ten Thousands, 2 Thousands, 1 Hundred, 0 Tens, 7 Ones = _____

4. 7 Hundred Thousands, 6 Ten Thousands, 0 Thousands, 0 Hundreds, 3 Tens, 9 Ones = _____

5. 8 Thousands, 4 Hundreds, 2 Tens, 0 Ones = _____

6. 1 Hundred Thousand, 1 Ten Thousand, 1 Thousand, 1 Hundred, 1 Ten, 1 One = _____

7. 3 Ten Thousands, 5 Thousands, 0 Hundreds, 9 Tens, 2 Ones = _____

8. 6 Hundred Thousands, 4 Ten Thousands, 8 Thousands, 1 Hundred, 5 Tens, 0 Ones = _____

9. 9 Hundred Thousands, 0 Ten Thousands, 0 Thousands, 0 Hundreds, 0 Tens, 5 Ones = _____

10. 2 Ten Thousands, 0 Thousands, 3 Hundreds, 7 Tens, 6 Ones = _____

11. 1 Million (Hint: This is 10 Hundred Thousands!) = _____

12. 8 Hundred Thousands, 8 Ten Thousands, 0 Thousands, 8 Hundreds, 0 Tens, 8 Ones = _____

Answer Key

Worksheet 1 Answers

Number	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1. 472,185	4	7	2	1	8	5
2. 98,621	0	9	8	6	2	1
3. 603,572	6	0	3	5	7	2
4. 120,045	1	2	0	0	4	5
5. 7,933	0	0	7	9	3	3
6. 999,999	9	9	9	9	9	9
7. 515,151	5	1	5	1	5	1
8. 380,007	3	8	0	0	0	7
9. 44,044	0	4	4	0	4	4
10. 750,190	7	5	0	1	9	0
11. 202,020	2	0	2	0	2	0
12. 83,406	0	8	3	4	0	6

Worksheet 2 Answers

1. 583,724
2. 91,658
3. 402,107
4. 760,039
5. 8,420
6. 111,111
7. 35,092
8. 648,150

9. 900,005
10. 20,376
11. 1,000,000
12. 880,808