

Fifty-five
thousandths is
larger

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Naaah!!
Thousandths are
larger than
hundredths!



Who is correct? Why?

1.3 Rounding Numbers: Mental Math

MATHPOWER™ *Eight*, pp. 10–11

If the key digit is less than 5, round down.

$386.\underline{4}52 \rightarrow 386.45$

If the key digit is 5 or more, round up.

$386.\underline{4}52 \rightarrow 390$

Round the number 74 283.629 to these place values.

1. to the nearest hundredth _____
2. to the nearest tenth _____
3. to the nearest one _____
4. to the nearest ten _____
5. to the nearest hundred _____
6. to the nearest thousand _____
7. to the nearest ten thousand _____

Circle the key digit in each number, then round to the indicated place value.

8. 17 423; nearest thousand _____
9. 73.86; nearest one _____
10. 0.846; nearest hundredth _____
11. 205 481; nearest ten _____
12. 439.551; nearest tenth _____
13. 2.3987; nearest thousandth _____

State the place value to which each decimal has been rounded.

14. $86.37 \rightarrow 86$ _____
15. $4259 \rightarrow 4000$ _____
16. $5.098 \rightarrow 5.1$ _____
17. $0.1045 \rightarrow 0.105$ _____
18. $2554 \rightarrow 2550$ _____

What digits can you insert so that

19. $5\boxed{}6$ rounds to 500? _____
20. $2.3\boxed{}1$ rounds to 2.4? _____
21. $35.\boxed{}9$ rounds to 36? _____
22. $0.53\boxed{}$ rounds to 0.53? _____

Round to the stated place value.

23. The area of British Columbia is 948 596 km². (nearest hundred thousand)

24. The length of the Peace River is 1923 km. (nearest ten)

25. The High Level Bridge in Lethbridge, Alberta, rises 314.96 m above the river valley below it. (nearest tenth)

26. Mt. Robson is the highest point in the Canadian Rockies. Its elevation is 3953.9 m. (nearest one)

27. A typical human hair grows about 0.033 cm per day. (nearest hundredth)

28. The longest street in the world is Yonge Street. It stretches from Toronto, Ontario, to Rainy River, Ontario, a distance of 1896.2 km. (nearest thousand)

All About Powers

One hundred million	Ten million	One million	One hundred thousand	Ten thousand	One thousand	One hundred	Ten	One
100 000 000	10 000 000	1 000 000	100 000	10 000	1000	100	10	1
10^8	10^7	10^6	10^5	10^4	10^3	10^2	10^1	10^0

Example 1:

- a) Write ten thousand in standard form and as a power of 10.
 b) Write 1 000 000 in words and as a power of 10.

Hint: The number of zeros after the digit 1 gives the exponent of the power of 10.

Solution:

- a) Use the place-value chart. Ten thousand is 10 000, which is 10^4 .
 b) 1 000 000 is one million, which is 10^6 .

1. Write each number in standard form and as a power of 10.

a) one hundred

b) one hundred thousand

c) ten million

d) one hundred billion

2. Write each number in words and as a power of 10.

a) 10 000

b) 1000

c) 10 000 000

d) 10 000 000 000

3. Write each number in expanded form using powers of 10.

a) 3560 = _____

b) 42 621 = _____

c) 1 753 147 = _____

d) 760 018 = _____

4. Write the expanded form of each number in standard form.

a) $3 \times 10^4 + 3 \times 10^3 + 5 \times 10^2 + 4 \times 10^1 + 2 =$ _____

b) $2 \times 10^5 + 4 \times 10^4 + 8 \times 10^3 + 5 \times 10^2 + 7 \times 10^1 + 5 =$ _____

c) $7 \times 10^3 + 5 \times 10^2 =$ _____

d) $5 \times 10^5 + 7 \times 10^2 + 4 \times 10^1 =$ _____

5. The diameter of Earth is 12 756 km. The diameter of Uranus is approximately four times as great as Earth's diameter. Write the approximate diameter of Uranus in the expanded form and in standard form. Show your work.



6. The mean of five numbers is 7.5×10^4 . Four of the numbers are: 50 000, 100 000, 75 000, 80 000. What is the 5th number? How do you know?

The mean of five numbers is the sum of the numbers divided by 5.

7. Different colours of light have different frequencies. The frequency of red light is 4.3×10^{14} Hz. The frequency of violet light is 7.5×10^{14} Hz.

- Which frequency is greater and by how much?
- Are numbers written in expanded form easier to compare than numbers in standard form? Explain.

The frequency of 1 Hz (one Hertz) means 1 wave per second.

The Metric Connection

1. Copy and complete the table below.

X 1000	X 100	X 10	Number	÷ 10	÷ 100	÷ 1000
			13			
			2.54			
			257			
			0.005			
			41.9			

2. Refer to the completed table in Question 1.

- What patterns do you notice?
- What happens to the decimal point when you multiply by 10, 100, and 1000?
- What happens when you divide?

3. Write rules for multiplying and dividing by 10, 100, and 1000.

4. Below is a chart for units of length.

<i>kilometre</i>	1 km = 1000 m
<i>hectometre</i>	1 hm = 100 m
<i>decametre</i>	1 dam = 10 m
<i>metre</i>	1 m
<i>decimetre</i>	1 dm = 0.1 m
<i>centimetre</i>	1 cm = 0.01 m
<i>millimetre</i>	1 mm = 0.001 m

a) Make a similar chart for units of mass. Include the units *kilogram*, *hectogram*, *decagram*, *gram*, *decigram*, *centigram*, *milligram*.

b) Make a similar chart for units of volume. Include the units *kilolitre*, *hectolitre*, *decalitre*, *litre*, *decilitre*, *centilitre*, *millilitre*.

Metric Conversions

"King Henry Doesn't Mind Drinking Chocolate Milk"

Km (kilo)

hm (hecto)

dam (deca)

m

dm (deci)

cm (centi)

mm (milli)

Up = \div

You can move

Down = \times

Let's try these:

a. 2 km = _____ dm

b. 3.5m = _____ mm

c. 10.75hm = _____ cm

d. 5 dam = _____ m

e. 12.01 mL = _____ L

f. 7.523 cL = _____ daL

g. 0.01 dL = _____ KL

h. 11.7 L = _____ hL

i. 0.345 kg = _____ g

j. 0.48 dag = _____ mg

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

Name: _____

Date: _____

Prime Factor Ladders

Use the ladder method to determine the prime factors of the following numbers.

1. 60

2. 48

3. 125

4. 186

5. 258

6. 486

Name: _____

Date: _____

Prime Factor Ladders

Use the Ladder Method to determine the prime factors of the following numbers:

1) 80

2) 140

3) 100

4) 220

5) 468

6) 240