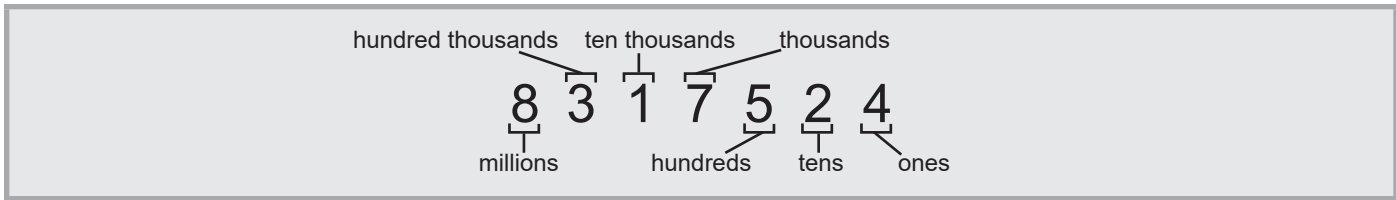


NS6-1 Place Value



1. Write the place value of the underlined digit.

- | | | | |
|----------------------|-----------------------------------|----------------------|----------------------|
| a) 56 <u>2</u> 36 | <input type="text" value="tens"/> | b) <u>1</u> 956 336 | <input type="text"/> |
| c) 8 <u>2</u> 56 601 | <input type="text"/> | d) 7 103 <u>2</u> 56 | <input type="text"/> |
| e) 2 <u>5</u> 89 143 | <input type="text"/> | f) 3 <u>9</u> 21 052 | <input type="text"/> |
| g) 903 <u>7</u> 46 | <input type="text"/> | h) 2 <u>6</u> 05 416 | <input type="text"/> |

2. Underline the digit 5 in the number. Write the place value of the digit 5 in the number.

- | | | | | | |
|-------------------|--|--------------|----------------------|--------------|----------------------|
| a) <u>3</u> 5 689 | <input type="text" value="thousands"/> | b) 5 308 603 | <input type="text"/> | c) 36 905 | <input type="text"/> |
| d) 512 | <input type="text"/> | e) 2542 | <input type="text"/> | f) 3 451 628 | <input type="text"/> |
| g) 43 251 | <input type="text"/> | h) 152 776 | <input type="text"/> | i) 1 543 001 | <input type="text"/> |
| j) 5 704 021 | <input type="text"/> | k) 7305 | <input type="text"/> | l) 9 695 000 | <input type="text"/> |

3. Write the number into the place value chart.

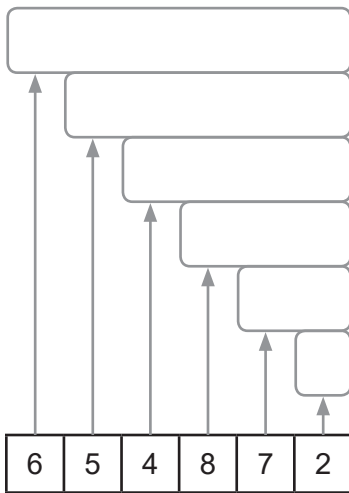
	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
a) 2 316 953							
b) 62 507							
c) 5 604 891							
d) 1399							
e) 17							
f) 998 260							
g) 5 002 008							

The number 784 523 is a **six-digit number**.

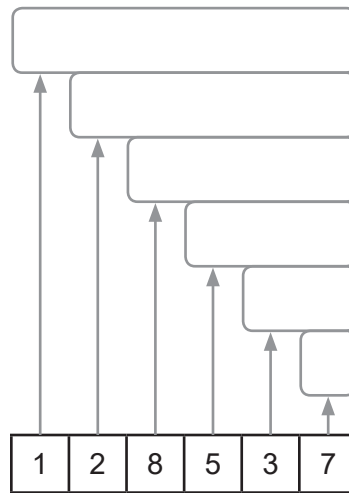
- The **digit** 7 stands for 700 000—the **value** of the digit 7 is 700 000.
- The digit 8 stands for 80 000—the value of the digit 8 is 80 000.
- The digit 4 stands for 4000—the value of the digit 4 is 4000.
- The digit 5 stands for 500—the value of the digit 5 is 500.
- The digit 2 stands for 20—the value of the digit 2 is 20.
- The digit 3 stands for 3—the value of the digit 3 is 3.

4. Write the **value** of each digit.

a) 654 872



b) 128 537



5. What does the digit 7 stand for in the number?

a) 8476

b) 38 725

c) 93 726

d) 730 025

e) 7250

f) 64 297

g) 43 075

h) 382 457

6. Fill in the blank.

a) In the number 4523, the digit 5 stands for _____.

b) In the number 34 528, the digit 3 stands for _____.

c) In the number 420 583, the value of the digit 8 is _____.

d) In the number 723 594, the digit _____ is in the ten thousands place.

BONUS ► In the number 2 709 926, the digit 2 stands for _____ and _____.

Number words for the tens place: ten twenty thirty forty fifty sixty seventy eighty ninety

7. Say whether the underlined digits represent **thousands** or **millions**.

- a) 327 510 210 *millions* b) 216 772 015 _____ c) 5 321 859 _____
 d) 879 054 815 _____ e) 129 000 307 _____ f) 2 500 623 _____

8. Write the value of the underlined digits.

- a) 375 231 872 *three hundred seventy-five million* _____
 b) 287 036 253 _____

c) 79 253 812

d) 3 770 823

e) 22 306 235

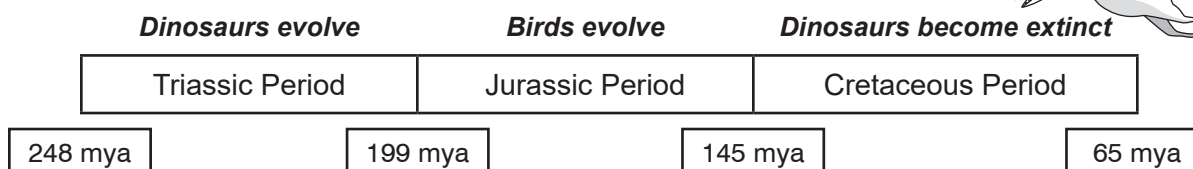
9. Write numerals for the number words.

- a) Seventy-three million, fifty-seven thousand, one hundred four
 b) Nine hundred seven million, four hundred three thousand, twenty-one

10. Write number words for the numerals.

- a) 275 381 210 b) 89 023 100 c) 998 325 593

11. Write how many years ago each period started, using words and then numerals.
 (Note: "mya" means millions of years ago.)



12. a) Write the distance from each planet to the sun using words.

Planet	Distance from Sun (km)
Mercury	57 600 000
Venus	107 520 000
Earth	148 640 000

b) The distance from Earth to the moon is 384 400 km. Write this distance using words.

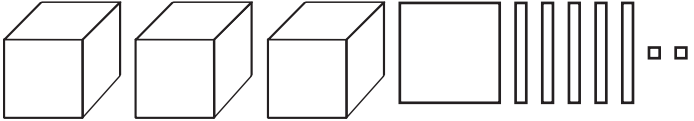
c) **Billions** come after millions.
 The planet Neptune is 4 468 640 000 km from the sun. Write this number in words.

13. Blood contains different kinds of cells. There are about 225 000 000 red blood cells, 335 000 white blood cells, and 12 800 000 platelets in a drop of blood. Write the numbers of different blood cells in words.

NS6-2 Representation in Expanded Form

1. Write the number in expanded form. Then draw a base ten model.

Example: $3152 = 3000 + 100 + 50 + 2$



a) $4354 =$

b) $2604 =$

2. Write the number in expanded form using numerals and words.

a) $2\ 536\ 784 =$ 2 millions + 5 hundred thousands + 3 ten thousands + 6 thousands
+ 7 hundreds + 8 tens + 4 ones

b) $6\ 235\ 401 =$ _____

c) $3\ 056\ 026 =$ _____

3. Write the number in expanded form using numerals.

a) $72\ 613 = 70\ 000 + 2000 + 600 + 10 + 3$ b) $36 =$ _____

c) $12\ 052 =$ _____ d) $526 =$ _____

e) $56\ 384 =$ _____ f) $2493 =$ _____

g) $3\ 082\ 385 =$ _____

h) $9\ 340\ 042 =$ _____

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4. Write the number for the expanded form.

a) $6000 + 700 + 40 + 5 =$ _____

b) $800 + 60 + 8 =$ _____

c) $3000 + 30 + 2 =$ _____

d) $50\,000 + 6000 + 400 + 90 + 3 =$ _____

e) $30\,000 + 2000 + 500 =$ _____

f) $90\,000 + 3000 + 600 + 8 =$ _____

g) $70\,000 + 700 + 7 =$ _____

h) $10\,000 + 6000 + 200 + 30 + 4 =$ _____

i) $4\,000\,000 + 300\,000 + 20\,000 + 7000 + 800 + 50 + 2 =$ _____

j) $2\,000\,000 + 300\,000 + 2000 + 30 + 2 =$ _____

BONUS ► $300\,000 + 2\,000\,000 + 20\,000 + 70\,000 + 200 =$ _____

5. Find the missing numbers.

a) $2000 + 600 +$ _____ $+ 5 = 2645$

b) $4000 + 200 +$ _____ $+ 5 = 4285$

c) $40\,000 + 3000 +$ _____ $+ 10 + 5 = 43\,715$

d) $80\,000 + 5000 +$ _____ $+ 60 + 3 = 85\,263$

e) $20\,000 + 6000 + 300 +$ _____ $= 26\,302$

f) _____ $+ 400 = 9400$

g) $6000 +$ _____ $= 6080$


h) $80\,000 +$ _____ $+$ _____ $= 87\,005$

i) $300\,000 + 90\,000 +$ _____ $+$ _____ $= 390\,702$

j) _____ $+ 300\,000 + 10\,000 + 500 +$ _____ $= 7\,310\,540$

k) $9\,000\,000 +$ _____ $+ 50\,000 +$ _____ $+ 800 +$ _____ $= 9\,458\,803$


6. How many thousands blocks would you need to represent a million? _____

 7. In the number 38 562, what is the sum of the tens digit and the thousands digit?

 8. a) How many two-digit numbers have digits that add to 12?


b) How many two-digit numbers have digits that add to 10?

c) How many two-digit numbers have digits that add to 8?

 9. Using only 5 base ten blocks, make (or draw) a model of a number such that...

a) the number is odd.

b) there are twice as many thousands blocks as hundreds blocks.

 10. Represent the number 3564 in four different ways.

• by sketching a base ten model

• in words

• in expanded form (2 ways)

NS6-3 Comparing and Ordering Numbers

1. Write the number in expanded form. Then complete the sentence.

a) $725 = \underline{700} + \underline{20} + \underline{5}$

b) $723 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

$735 = \underline{700} + \underline{30} + \underline{5}$

$623 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

735 is greater than 725.

 is greater than .

c) $463 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

d) $309 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

$462 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

$319 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

 is greater than .

 is greater than .

2. Circle the digits that are different in the pair of numbers. Then write the greater number in the box.

a) $5\ 4\ 9\ \textcircled{3}\ 7$
 $5\ 4\ 9\ \textcircled{2}\ 7$

b) $9\ 5\ 4\ 1\ 0\ 3$

$9\ 5\ 6\ 1\ 0\ 3$

c) $2\ 5\ 3\ 2\ 1\ 1\ 9$

$2\ 5\ 3\ 2\ 1\ 0\ 9$

d) $4\ 5\ 0\ 1\ 8\ 6\ 2\ 1\ 4$

$4\ 5\ 0\ 1\ 8\ 6\ 2\ 2\ 4$

3. Reading from left to right, circle the first digits that are different in the pair of numbers. Then write the greater number in the box.

a) $6\ 4\ 1\ 5\ \textcircled{8}\ 3$
 $6\ 4\ 1\ 5\ \textcircled{9}\ 7$

b) $5\ 2\ 3\ 7\ 1\ 4$

$5\ 2\ 7\ 3\ 1\ 4$

c) $3\ 2\ 4\ 3\ 7\ 1$

$4\ 2\ 4\ 6\ 1\ 1$

d) $1\ 6\ 2\ 3\ 7$

$1\ 6\ 2\ 2\ 7$

"5 > 3" means "5 is greater than 3" and "3 < 5" means "3 is less than 5." The signs > and < are called **inequality signs**.

4. Write the correct inequality sign (> or <) in the box.

a) $5392 \boxed{>} 5246$

b) $23\ 172 \boxed{\quad} 23\ 157$

c) $323\ 728 \boxed{\quad} 323\ 729$

d) $6000 \boxed{\quad} 5999$

e) $152\ 719 \boxed{\quad} 152\ 620$

f) $52\ 305 \boxed{\quad} 61\ 302$

g) $3289 \boxed{\quad} 10\ 104$

h) $2\ 351\ 052 \boxed{\quad} 2\ 351\ 049$

i) $15\ 327 \boxed{\quad} 15\ 232$

j) $7214 \boxed{\quad} 18\ 932$

k) $382\ 636 \boxed{\quad} 382\ 522$

l) $2\ 627\ 382 \boxed{\quad} 2\ 643\ 927$

5. Create the greatest possible *four-digit* number using the digits given. Only use each digit once.

- a) 4, 3, 2, 6 _____ b) 7, 8, 9, 4 _____ c) 0, 4, 1, 2 _____

6. Create the greatest possible number using these digits. Only use each digit once.

- a) 3, 4, 1, 2, 8 _____ b) 2, 8, 9, 1, 5 _____ c) 3, 6, 1, 5, 4 _____

7. Use the digits to create the greatest number, the least number, and a number in between.

	Digits	Greatest Number	Number in Between	Least Number
a)	8 5 7 2 1			
b)	2 1 5 3 9			
c)	3 0 1 5 3			

8. Arrange the numbers in order, starting with the *least* number.

- a) 3257 3352 3183
 _____ , _____ , _____

- b) 17 251 17 385 17 256
 _____ , _____ , _____

- c) 87 500 87 498 87 499
 _____ , _____ , _____

- d) 36 725 3281 93 859
 _____ , _____ , _____

- e) 60 052 60 001 60 021
 _____ , _____ , _____

- f) 273 5891 17
 _____ , _____ , _____

g) 23 809, 45 789 001, 423 010

h) 648 973 902, 973 902 648, 902 648 973

i) 301 298 456, 42 907 812, 329 564, 789 234 502

j) 72 572, 572 000, 572 000 572, 57 200 572, 572 572

9. Using the digits 0, 1, 2, 3, 4, create a number greater than 32 000 and less than 34 000.

10. Using the digits 3, 5, 6, 7, 8, create an even number greater than 85 000 and less than 87 000.

11. Which digit is covered by the black square?

a) $32\ 675 < 32 \blacksquare 56 < 32\ 854$

b) $68\ 379 < 68 \blacksquare 32 < 68\ 464$

c) $999\ 999 < \blacksquare 233\ 458 < 2\ 000\ 000$

d) $223\ 789\ 021 > 22 \blacksquare 935\ 784 > 222\ 934\ 567$

NS6-4 Addition and Subtraction

1. Write the numbers in expanded form. Then add the place values and regroup.

a)
$$\begin{array}{r} 473 \\ + 291 \\ \hline \end{array}$$
 _____ hundreds + _____ tens + _____ ones
 + _____ hundreds + _____ tens + _____ one
 _____ hundreds + _____ tens + _____ ones
 Regroup: _____ hundreds + _____ tens + _____ ones

b)
$$\begin{array}{r} 3418 \\ + 2945 \\ \hline \end{array}$$
 _____ thousands + _____ hundreds + _____ ten + _____ ones
 + _____ thousands + _____ hundreds + _____ tens + _____ ones
 _____ thousands + _____ hundreds + _____ tens + _____ ones
 Regroup: _____ thousands + _____ hundreds + _____ tens + _____ ones

2. Add. You will need to regroup.

a)
$$\begin{array}{r} \boxed{1} \\ 364 \\ + 298 \\ \hline 657 \end{array}$$
 $6 + 9 = 15$
 $1 + 3 + 2$

b)
$$\begin{array}{r} \boxed{} \\ 571 \\ + 255 \\ \hline \end{array}$$

c)
$$\begin{array}{r} \boxed{} \\ 652 \\ + 94 \\ \hline \end{array}$$

d)
$$\begin{array}{r} \boxed{} \\ 362 \\ + 482 \\ \hline \end{array}$$

3. Add. Regroup when necessary.

a)
$$\begin{array}{r} \boxed{} \\ 435 \\ + 129 \\ \hline \end{array}$$

b)
$$\begin{array}{r} \boxed{} \\ 208 \\ + 357 \\ \hline \end{array}$$

c)
$$\begin{array}{r} \boxed{} \\ 372 \\ + 175 \\ \hline \end{array}$$

d)
$$\begin{array}{r} \boxed{} \boxed{} \\ 699 \\ + 214 \\ \hline \end{array}$$

e)
$$\begin{array}{r} \boxed{} \\ 4371 \\ + 1825 \\ \hline \end{array}$$

f)
$$\begin{array}{r} \boxed{} \\ 2502 \\ + 3567 \\ \hline \end{array}$$

g)
$$\begin{array}{r} \boxed{} \\ 3854 \\ + 1835 \\ \hline \end{array}$$

h)
$$\begin{array}{r} \boxed{} \boxed{} \\ 6979 \\ + 2116 \\ \hline \end{array}$$

i)
$$\begin{array}{r} \boxed{} \boxed{} \\ 4657 \\ + 1635 \\ \hline \end{array}$$

j)
$$\begin{array}{r} \boxed{} \boxed{} \\ 2946 \\ + 3547 \\ \hline \end{array}$$

k)
$$\begin{array}{r} \boxed{} \boxed{} \\ 3762 \\ + 1975 \\ \hline \end{array}$$

l)
$$\begin{array}{r} \boxed{} \boxed{} \boxed{} \\ 5989 \\ + 3114 \\ \hline \end{array}$$

4. Add. Regroup when necessary.

a)

$$\begin{array}{r} 168 \\ + 323 \\ \hline \end{array}$$

b)

$$\begin{array}{r} 255 \\ + 362 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 395 \\ + 123 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 465 \\ + 159 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 4752 \\ + 636 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 2946 \\ + 97 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 8752 \\ + 1075 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 6979 \\ + 7126 \\ \hline \end{array}$$

i)

$$\begin{array}{r} 5846 \\ + 1135 \\ \hline \end{array}$$

j)

$$\begin{array}{r} 3564 \\ + 2813 \\ \hline \end{array}$$

k)

$$\begin{array}{r} 73246 \\ + 18382 \\ \hline \end{array}$$

l)

$$\begin{array}{r} 235275 \\ + 512913 \\ \hline \end{array}$$

5. Line up the numbers correctly in the grid. Add. Regroup when necessary.

a) $449 + 346$

	4	4	9
+	3	4	6
<hr/>			

b) $273 + 456$

+			
<hr/>			

c) $347 + 72$

+			
<hr/>			

d) $16890 + 27325$

e) $91892 + 4956$

f) $345678 + 876543$

6.

- Camile cycled 2357 km one year and 5753 km the next. How many kilometres did she cycle altogether?
- Two nearby towns have populations of 442 670 and 564 839. What is the total population of both towns?

7. Regroup 1 ten as 10 ones. Rewrite the subtraction question.

a)
$$\begin{array}{r} 4 \quad 13 \\ \cancel{5} \quad \cancel{2} \\ - 3 \quad 6 \end{array}$$

b)
$$\begin{array}{r} \\ - 6 \quad 5 \\ - 2 \quad 9 \end{array}$$

c)
$$\begin{array}{r} \\ - 6 \quad 7 \\ - 4 \quad 8 \end{array}$$

d)
$$\begin{array}{r} \\ - 2 \quad 4 \quad 4 \\ - 1 \quad 3 \quad 7 \end{array}$$

8. Subtract. You will need to regroup once.

a)
$$\begin{array}{r} 7 \quad 12 \\ \cancel{8} \quad \cancel{2} \\ - 3 \quad 7 \\ \hline 4 \quad 5 \end{array}$$

b)
$$\begin{array}{r} \\ - 5 \quad 4 \\ - 2 \quad 6 \end{array}$$

c)
$$\begin{array}{r} 5 \quad 13 \\ \cancel{6} \quad \cancel{2} \quad 8 \\ - 4 \quad 5 \quad 3 \end{array}$$

d)
$$\begin{array}{r} \\ - 8 \quad 5 \quad 4 \\ - 3 \quad 7 \quad 2 \end{array}$$

e)
$$\begin{array}{r} \\ - 7 \quad 5 \quad 5 \\ - 3 \quad 8 \quad 2 \end{array}$$

f)
$$\begin{array}{r} \\ - 4 \quad 2 \quad 3 \\ - 1 \quad 8 \quad 2 \end{array}$$

g)
$$\begin{array}{r} \\ - 7 \quad 8 \quad 4 \\ - 2 \quad 4 \quad 8 \end{array}$$

h)
$$\begin{array}{r} \\ - 3 \quad 4 \quad 3 \\ - 2 \quad 1 \quad 9 \end{array}$$

i)
$$\begin{array}{r} \\ - 2 \quad 8 \quad 2 \quad 5 \\ - 1 \quad 5 \quad 1 \quad 7 \end{array}$$

j)
$$\begin{array}{r} \\ - 6 \quad 7 \quad 1 \quad 9 \\ - 3 \quad 1 \quad 6 \quad 4 \end{array}$$

k)
$$\begin{array}{r} \\ - 3 \quad 2 \quad 9 \quad 8 \\ - 1 \quad 8 \quad 3 \quad 8 \end{array}$$

l)
$$\begin{array}{r} \\ - 2 \quad 3 \quad 7 \quad 5 \\ - 1 \quad 4 \quad 7 \quad 1 \end{array}$$

Sometimes you need to regroup several times. When subtracting $6423 - 3746$, regroup 1 ten as 10 ones, 1 hundred as 10 tens, and 1 thousand as 10 hundreds.

Example:

Step 1	Step 2	Step 3	Step 4	Step 5
$\begin{array}{r} 1 \quad 13 \\ 6 \quad 4 \quad \cancel{2} \quad \cancel{3} \\ - 3 \quad 7 \quad 4 \quad 6 \end{array}$	$\begin{array}{r} 1 \quad 13 \\ 6 \quad 4 \quad \cancel{2} \quad \cancel{3} \\ - 3 \quad 7 \quad 4 \quad 6 \\ \hline 7 \end{array}$	$\begin{array}{r} 11 \\ 3 \quad \cancel{4} \quad \cancel{2} \quad \cancel{3} \\ - 3 \quad 7 \quad 4 \quad 6 \\ \hline 7 \quad 7 \end{array}$	$\begin{array}{r} 13 \quad 11 \\ 5 \quad \cancel{2} \quad \cancel{2} \quad \cancel{3} \\ - 3 \quad 7 \quad 4 \quad 6 \\ \hline 6 \quad 7 \quad 7 \end{array}$	$\begin{array}{r} 13 \quad 11 \\ 5 \quad \cancel{2} \quad \cancel{2} \quad \cancel{3} \\ - 3 \quad 7 \quad 4 \quad 6 \\ \hline 2 \quad 6 \quad 7 \quad 7 \end{array}$

9. Subtract, regrouping two or three times.

a)
$$\begin{array}{r} \\ - 8 \quad 9 \quad 2 \quad 9 \\ - 4 \quad 9 \quad 5 \quad 8 \end{array}$$

b)
$$\begin{array}{r} \\ - 8 \quad 7 \quad 2 \quad 5 \\ - 4 \quad 9 \quad 5 \quad 8 \end{array}$$

c)
$$\begin{array}{r} \\ - 6 \quad 4 \quad 3 \quad 7 \\ - 2 \quad 6 \quad 7 \quad 8 \end{array}$$

d)
$$\begin{array}{r} \\ - 4 \quad 5 \quad 6 \quad 3 \\ - 1 \quad 7 \quad 9 \quad 5 \end{array}$$

10. Subtract. Regroup when necessary.

a)

	7	8	4	3
–	4	8	6	5

b)

	1	0	0	0	0
–		6	4	8	6

c)

	4	3	0	2	4
–	3	8	3	9	2

d)

	4	0	8	5	9	1
–		2	3	7	8	4

e)

	1	0	0	0	0	0	0
–		7	8	3	6	0	8

f)

	1	0	1	0	1	0	1
–			3	4	5	6	7

11.

- a) File Data1.PDF contains 6497 KB of data. File Data2.PDF contains 4378 KB of data. How much data is in both files together?
- b) The Falcon 9 rocket consists of two parts called stages. Stage 1 weighs 25 600 kg and its fuel weighs 395 700 kg. Stage 2 weighs 3900 kg and its fuel weighs 92 670 kg. What is the combined mass of both stages and the fuel?

12.

- a) The Nile River is about 6690 km long and the Amazon River is about 6440 km long. How much longer is the Nile River than the Amazon River?
- b) Mars has two moons, Phobos and Deimos. The average distance from Mars is 9378 km for Phobos and 23 459 km for Deimos. How much farther from Mars on average is Deimos?

13.

The table shows the shoreline length of the Great Lakes. Use the information in the table to answer the questions.

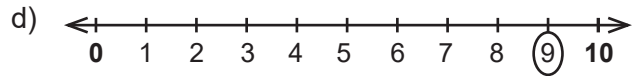
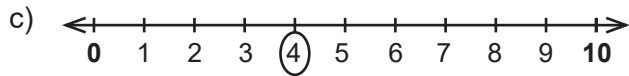
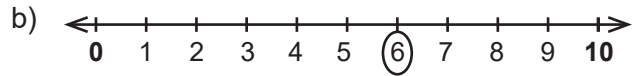
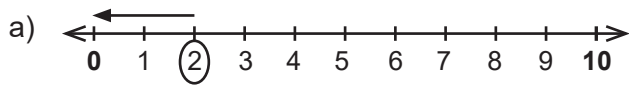
- a) How much longer is the shoreline of Lake Superior than Lake Ontario?
- b) Which is longer, the combined shoreline length of Lake Superior, Lake Erie, and Lake Ontario or the combined shoreline length of Lake Huron and Lake Michigan? How much longer?
- c) The total shoreline length of Canada is 202 080 km. Which is longer, the total shoreline length of Canada or of the Great Lakes? How much longer?
- d) Make your own addition and subtraction questions using the information in the table. Calculate the answers.

Lake	Shoreline Length (km)
Superior	4393
Huron	6164
Michigan	2639
Erie	1402
Ontario	1146



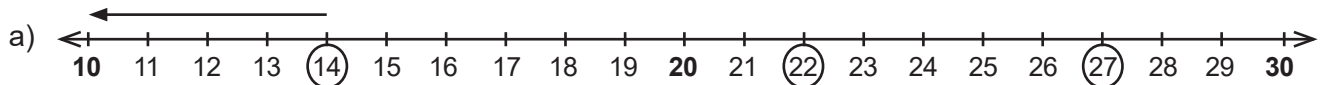
NS6-5 Rounding

1. Draw an arrow to the 0 or 10 to show whether the circled number is closer to 0 or 10.

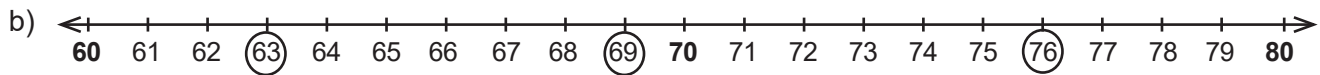


2. a) Which one-digit numbers are closer to 0? _____
 b) Which one-digit numbers are closer to 10? _____
 c) Why is 5 a special case? _____

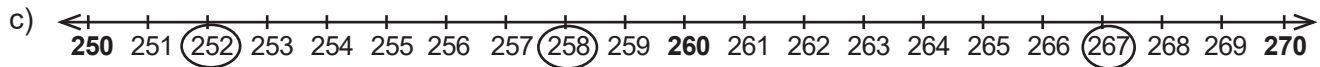
3. For the circled number, draw an arrow to show which multiple of 10 you would round to. Then round the number to the nearest 10.



Round to: 10 _____ _____



Round to: _____ _____ _____

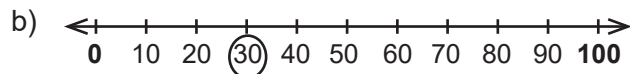
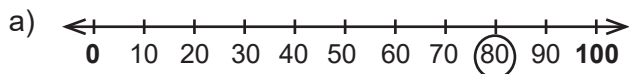


Round to: _____ _____ _____

4. Circle the correct answer.

- a) 29 is closer to: 20 or 30 b) 14 is closer to: 10 or 20
 c) 254 is closer to: 250 or 260 d) 488 is closer to: 480 or 490

5. Draw an arrow to show whether the circled number is closer to 0 or 100.

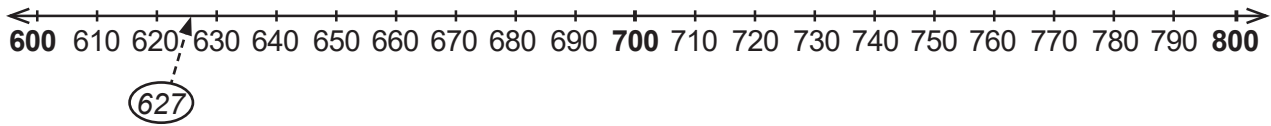


6. Is 50 closer to 0 or to 100? Why is 50 a special case?

7. Circle the correct answer.

- a) 80 is closer to: 0 or 100 b) 20 is closer to: 0 or 100
 c) 40 is closer to: 0 or 100 d) 60 is closer to: 0 or 100

8. Show the approximate position of the number on the line. What multiple of 100 do you round to?

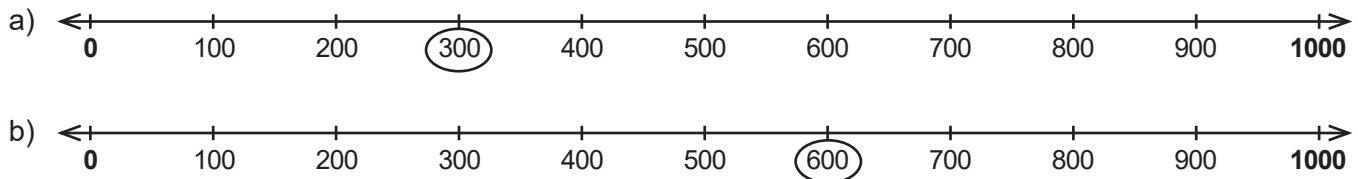


- a) 627 b) 683 c) 795 d) 706
 Round to _____ Round to _____ Round to _____ Round to _____

9. Circle the correct answer.

- a) 165 is closer to: 100 or 200 b) 635 is closer to: 600 or 700
 c) 870 is closer to: 800 or 900 d) 532 is closer to: 500 or 600

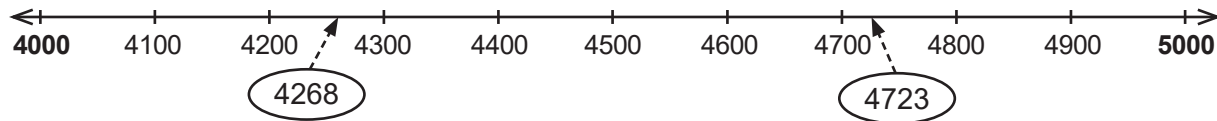
10. Draw an arrow to show whether the circled number is closer to 0 or 1000.



11. Circle the correct answer.

- a) 100 is closer to: 0 or 1000 b) 900 is closer to: 0 or 1000 c) 600 is closer to: 0 or 1000

12. Draw an arrow to show which multiple of 1000 you round to.



Round to: _____ Round to: _____

13. Circle the correct answer.

- a) 2953 is closer to: 2000 or 3000 b) 7293 is closer to: 7000 or 8000
 c) 5521 is closer to: 5000 or 6000 d) 8232 is closer to: 8000 or 9000

14. Write a rule for rounding a four-digit number to the nearest thousand.

15. Underline the digit you want to round to. Look at the next digit. Do you round up or down?

a) thousands

2	<u>7</u>	3	2	5

round up
round down

b) ten thousands

6	8	4	1	1

round up
round down

c) hundreds

7	4	5	0	8

round up
round down

d) tens

4	0	8	1	2	3

round up
round down

e) thousands

1	9	6	7	8	2

round up
round down

f) thousands

3	0	0	5	2	7

round up
round down

Step 1: Round the underlined digit up or down.

Step 2: The digits to the right of the rounded digit become zeros.

To round up, add 1 to the digit.

To round down, keep the digit the same.

The digits to the left remain the same.

hundreds

4	5	7	<u>3</u>	2	5
			3		

up
down

hundreds

4	5	7	<u>3</u>	2	5
4	5	7	3	0	0

up
down

16. Round to the indicated place value.

a) thousands

1	0	<u>0</u>	7	2	3
1	0	1	0	0	0

up
down

b) ten thousands

9	8	6	4	5	1

up
down

c) hundreds

3	1	7	2	2	6

up
down

d) hundred thousands

2	1	5	9	3	2	7

up
down

e) tens

3	8	5	7	2	0	6

up
down

f) hundred thousands

6	6	7	8	9	5	2

up
down

Sometimes in rounding you have to regroup.

Example: Round 37 952 to the nearest hundred.

3	7	<u>9</u>	5	2
		10		

Round 9 hundreds up to 10 hundreds.

3	7	<u>9</u>	5	2
	8	0		

Regroup the 10 hundreds as 1 thousand. Add it to the 7 thousands to make 8 thousands.

3	7	<u>9</u>	5	2
3	8	0	0	0

Complete the rounding.

BONUS ▶ Round the number, regrouping if necessary.

a) 395 721 to the ten thousands b) 427 296 to the tens

c) 20 963 to the hundreds

NS6-6 Estimating in Addition and Subtraction

Mathematicians use the sign \approx to mean **approximately equal to**.

1. Estimate the sums and differences by rounding to the nearest hundreds or thousands.

a) $290 \rightarrow$

300

 $+ 360 \rightarrow$

400

700

b) $390 \rightarrow$

--

 $+ 460 \rightarrow$

--

--

c) $6301 \rightarrow$

--

 $- 1708 \rightarrow$

--

--

d) $680 \rightarrow$

--

 $+ 160 \rightarrow$

--

--

e) $470 \rightarrow$

--

 $- 220 \rightarrow$

--

--

f) $5610 \rightarrow$

--

 $+ 7240 \rightarrow$

--

--

g) $941 - 463 \approx$ _____ h) $1267 + 5679 \approx$ _____ i) $5232 - 2854 \approx$ _____

2. a) Estimate the difference in $1875 - 1532$ by rounding to the nearest thousand. _____
 b) Estimate the difference in $1875 - 1532$ by rounding to the nearest hundred. _____
 c) Which method makes more sense in the estimation? Explain. _____

 d) Circle the place value to which you will round each number when estimating the difference.
 i) $34\ 509 - 34\ 243$ ii) $123\ 456 - 90\ 389$ iii) $875\ 234 - 672\ 092$ iv) $45\ 681 - 43\ 902$

The **leading digit** is the leftmost digit of the number. The leading digit of 51 and 567 890 is 5.

3. Estimate. Then add or subtract. Hint: Which digit will you round to? It may not be the leading digit.

a) $273\ 572 + 675\ 215 \approx$ _____

b) $20\ 273 - 15\ 723 \approx$ _____

c) $80\ 278 - 42\ 325 \approx$ _____

d) $1\ 275\ 382 + 5\ 385\ 273 \approx$ _____

4. Follow the instructions to find the answer to the addition. Write the answer in the table below.

- a) Estimate the answer by rounding the numbers to the leading digit.
- b) Estimate the answer by rounding one number up and the other number down. Round to the leading digit.
- c) Estimate the answer by rounding both numbers up to the leading digit.
- d) Calculate the actual answer.

Part	$3456 + 2391$	$32\,901 + 44\,789$	$372\,987 + 573\,004$	$64\,870 + 28\,705$
a)	<i>5000</i>			
b)	<i>6000</i>			
c)	<i>7000</i>			
d)	<i>5847</i>			

- e) Circle the estimates from parts a), b), and c) that were closest to the actual answer in part d).
- f) Which way of estimating works best for addition? Explain. _____

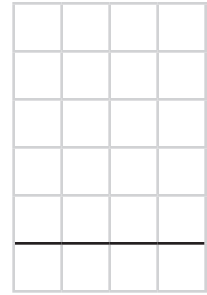
5. Follow the instructions to find the answer to the subtraction. Write the answer in the table below.

- a) Estimate the answer by rounding the numbers to the leading digit.
- b) Estimate the answer by rounding one number up and the other number down. Round to the leading digit.
- c) Estimate the answer by rounding both numbers up to the leading digit.
- d) Calculate the actual answer.

Part	$3456 - 2391$	$52\,901 - 44\,789$	$882\,987 - 573\,004$	$64\,870 - 28\,705$
a)				
b)				
c)				
d)				

- e) Circle the estimates from parts a), b), and c) that were closest to the actual answer in part d).
- f) Which way of estimating works best for subtraction? Explain. _____

6. A supermarket sold 472 apples, 783 oranges, 341 pears, and 693 bananas. How many pieces of fruit in total did the supermarket sell? Use estimation to check your solution. Explain your estimation strategy.



7. Round 628 315 to the nearest...

- a) ten _____ b) hundred _____
 c) thousand _____ d) ten thousand _____
 e) hundred thousand _____ **BONUS ►** million _____

8. Luc is planning a trip from Sydney, NS, to Vancouver, BC. If he drives through Canada, the distance is 6032 km, which takes 63 hours to drive. If he drives through the United States, the distance is 6392 km, which takes 60 hours to drive. Luc plans to drive to Vancouver through Canada and return through the United States. What is the total distance Luc plans to drive? Estimate to check your answer.

9. An almanac lists the populations of Nova Scotia and PEI as 923 600 and 143 000. The numbers are rounded to the same digit. What digit are these numbers rounded to? Explain.

10. Rick calculated $45\,780 + 23\,451 = 89\,231$. Is Rick's answer correct? Use estimation to check.

11. Use the information in the table to answer the question. Then estimate to check your answer.

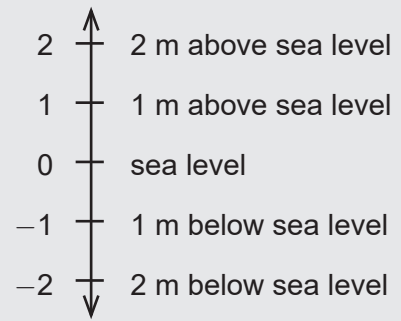
- a) What is the total area of Manitoba and Saskatchewan?
 b) How much larger is the area of Ontario than the area of British Columbia?
 c) Make your own addition and subtraction questions using the information in the table. Calculate the answers.

Province	Area (km ²)
Alberta	661 848
British Columbia	944 735
Manitoba	647 797
Ontario	1 076 395
Saskatchewan	651 036

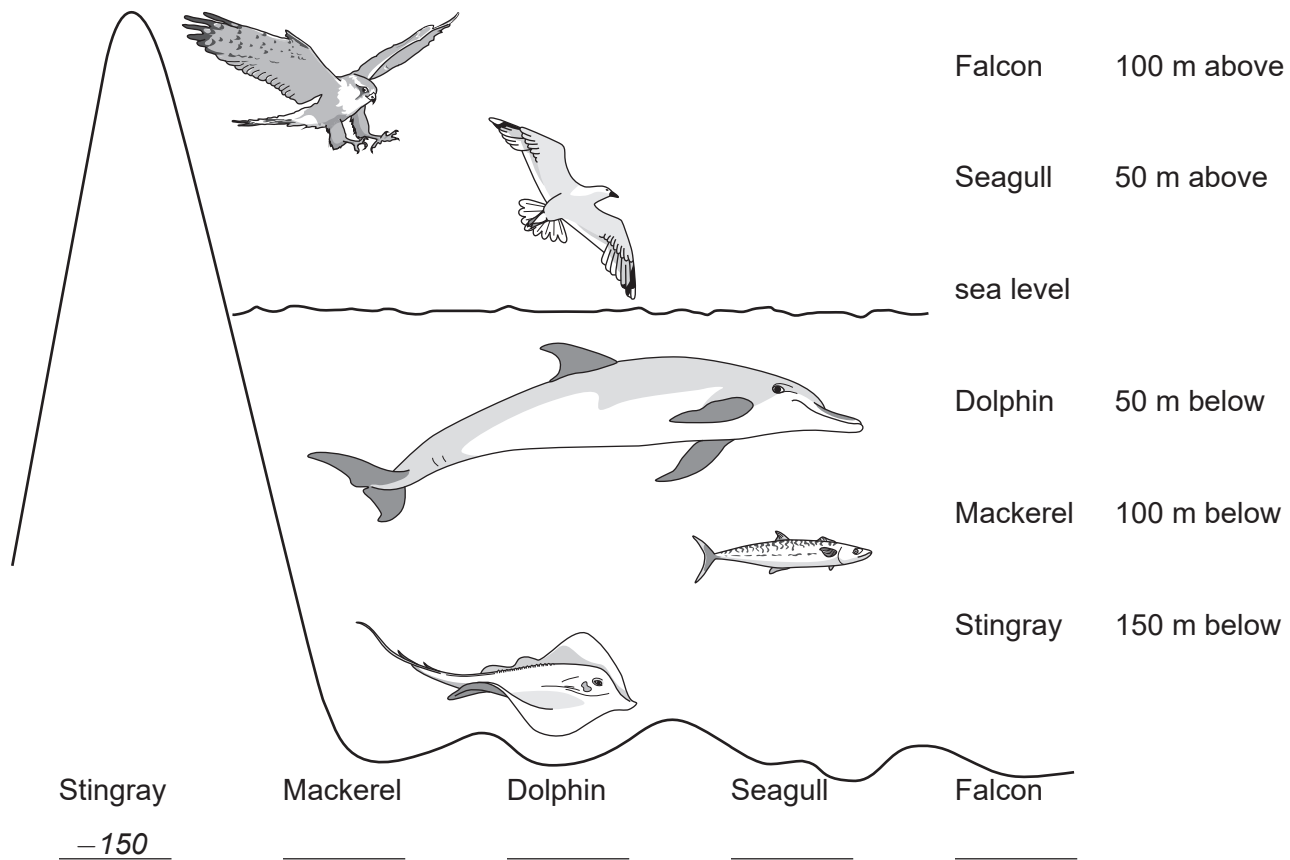
NS6-7 Integers

The height above sea level and the depth below sea level are recorded on a scale that includes zero (0), **positive whole numbers** (1, 2, 3, ...), and **negative whole numbers** (-1, -2, -3, ...).

These numbers are called **integers**.



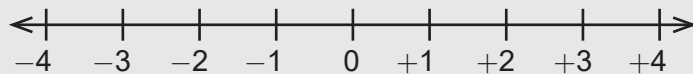
1. a) Write an integer for the level at which each animal typically flies or swims.



b) Which animal swims above the other, the dolphin or the mackerel? _____

One integer is **greater than** another if it is

- higher up on a vertical number line or
- farther right on a horizontal number line.



The inequality sign $>$ means "is greater than" and $<$ means "is less than."

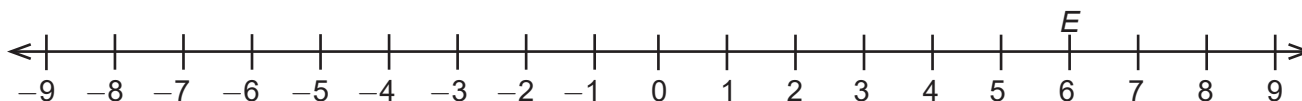
c) Write an integer inequality to show your answer in part b): _____ $<$ _____

Integers that are greater than 0 are called **positive integers**. Integers that are less than 0 are called **negative integers**.

Positive integers are sometimes written with a “+” sign in front. Example: 3 can be written as 3 or +3, but -3 is only written as -3.

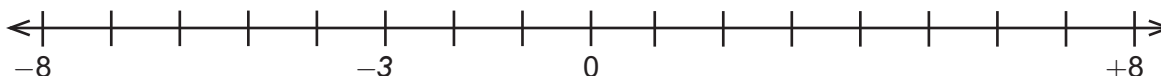
2. Label the following numbers on the number line with their letters.

E. 6 **O.** -3 **G.** -7 **L.** -5 **B.** 3



3. Write the integer on the number line.

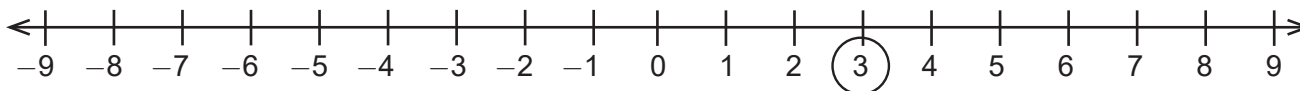
a) -3 b) +3 c) -4 d) +7 e) -2 f) -5



4. Circle the greater integer in the pair. Hint: Use the number line from Question 2.

a) -3 or +5 b) +7 or -2 c) +8 or +3 d) -5 or -4

5. a) Circle the integers on the number line: 3 -4 -8 -1 7



b) Order the integers you circled from least to greatest.

_____ < _____ < _____ < _____ < _____

6. Write < (is less than) or > (is greater than) in the box.

a) +3 +7 b) -5 +4 c) +7 -2 d) -4 -6

7. Put the integers into the boxes in order, from greatest to least.

+5, -3, +10, -7, -2 → > > > >

8. Use any of the number lines above to answer the question.

- How many negative integers are greater than (to the right of) -4? _____
- What are 3 integers that are less than -5? _____, _____, _____
- How many integers are between -4 and +2? _____
- Which integers are closer together, -3 and +3 or -4 and +4? _____

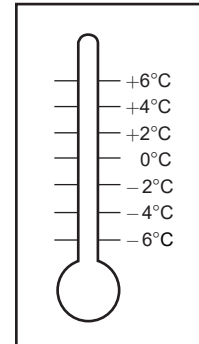
Temperature is also recorded using integers. We use **degrees Celsius ($^{\circ}\text{C}$)** to measure and record temperature.

9. Write “warmer” or “colder,” then write $>$ or $<$ to show your answer.

a) $+3^{\circ}\text{C}$ is _____ than -4°C , so $+3$ -4 .

b) -5°C is _____ than -2°C , so -5 -2 .

c) -3°C is _____ than -6°C , so -3 -6 .



10. The graph shows the average temperature on the planets in our solar system.

a) What is the warmest average temperature?

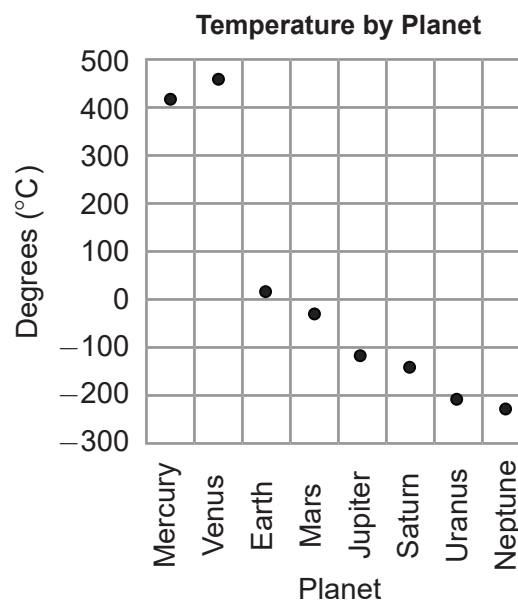
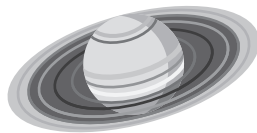
About _____ $^{\circ}\text{C}$

b) What is the coldest average temperature?

About _____ $^{\circ}\text{C}$

BONUS ► What is the difference between the coldest average temperature and the warmest average temperature?

About _____ $^{\circ}\text{C}$



11. The temperature in Calgary, Alberta, was -8°C on Monday and -11°C on Tuesday.

Which day was warmer? _____

Integers can be used to describe quantities having opposite directions from a given point.

Examples: temperatures above (+) and below ($-$) zero, golf scores above (+) and below ($-$) par, hours ahead of (+) or behind ($-$) London, UK.

12. Write an integer to represent the quantity.

a) A temperature of fifty-two above zero _____

b) A depth of two hundred meters below sea level _____

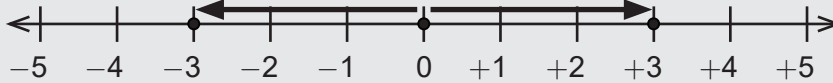
c) A golf score of 5 shots above par _____

d) A height of three hundred metres above sea level _____

e) 5 hours behind London, UK _____

NS6-8 Opposite Integers

When two integers are the same distance from 0, but in opposite directions, they are called **opposite** integers. Example: +3 and -3 are opposite integers.



1. Use the number line above to write the opposite integer.

- a) +4 _____ b) -2 _____ c) +5 _____ d) -1 _____

The opposite of an integer has the same whole number part, but the opposite sign (+ or -).

Example: The opposite of -100 is +100.

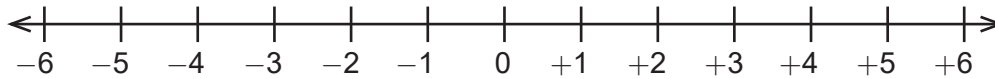
2. The opposite of 429 is _____.

3. Circle the number that is closer to 0.

- a) -3 or -7 b) 3 or 7 c) -2 or +5 d) +2 or -5

4. Label each integer on the number line with its letter. What do the letters spell? _____

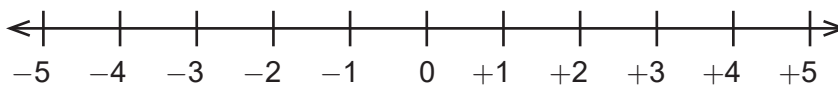
- N.** the opposite of -6 **O.** halfway between +1 and +5
U. halfway between -1 and -3 **K.** an equal distance from +4 and -4
Y. on the same side of 0 as -3, but twice as far from 0 as -3



5. The integer 0 is halfway between...

- a) -2 and _____ b) -5 and _____ c) -12 and _____ d) -573 and _____

6. a) Use the number line to compare the positive numbers and their opposite negative numbers. Write < or >.



- i) 2 5 and -2 -5 ii) 4 3 and -4 -3
 iii) 3 1 and -3 -1 iv) 2 4 and -2 -4

b) Predict using the pattern from part a): since $235 < 246$, then -235 -246 .

BONUS ► What integer is equal to its opposite? Explain.

REMINDER ▶ Two integers are opposite integers if they are the same distance from 0 but in opposite directions.

If you can compare positive integers, you can compare their opposite negative integers too.

Example: 32 is **less than** 500, so -32 is **greater than** -500 .

7. Compare the positive integers, then compare the negative integers.

a) $+5421$ $+5432$ b) $+25\,453$ $+23\,674$ c) $+7000$ $+5982$
 so -5421 -5432 so $-25\,453$ $-23\,674$ so -7000 -5982

d) $13\,000$ $14\,000$ e) $72\,516$ $75\,216$ f) $+30\,407$ $+3407$
 so $-13\,000$ $-14\,000$ so $-72\,516$ $-75\,216$ so $-30\,407$ -3407

8. Compare the negative integers by imagining their opposite positive integers.

a) -652 -1538 b) $-809\,417$ $-796\,583$ c) -6000 $-40\,000$

9. Do you need to compare the numbers 38 and 27 to compare -38 to $+27$? _____

Explain. _____

10. Write “greater than” or “less than” in the blank.

A negative integer is always _____ a positive integer.

11. Compare the integers. Write $<$ or $>$.

a) -200 100 b) 750 -4000 c) -800 -1000
 d) -6000 5000 e) $72\,413$ -5000 f) $+853\,416$ $+872\,503$
 g) $751\,602$ $83\,917$ h) $-615\,893$ $-1\,000\,000$ i) $-983\,417$ $785\,392$
 j) $-62\,953$ $304\,502$ k) $-621\,419$ $+583\,742$ l) $-8\,217\,354$ $-8\,216\,493$

12. Use the digits 4, 5, 6, and 7 to create the number.

- a) the greatest integer possible b) the least integer possible
 c) the greatest negative integer possible d) a number between -6456 and -6576