

Whole Numbers: Rounding

To round a whole number to a given place value, you must know the place values.

- Fill in the names of the place values. (If you are unsure of this, study "Understanding Place Value" in your text before you do this lab.)

_ _ _ , _ _ _ , _ _ _ .
 i h g f e d c b a

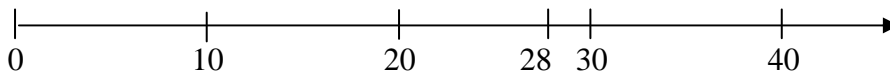
a	_____	f	_____
b	_____	g	_____
c	_____	h	_____
d	_____	i	_____
e	_____		

When you are asked to round a whole number to the nearest ten, you are asked to write the multiple of ten that is closest to the given number.

EXAMPLE: Round 28 to the nearest **ten**.

The multiples of 10 are 10, 20, 30, 40, ...

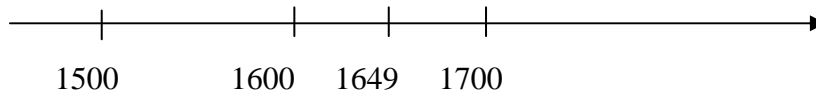
28 is between 20 and 30 on the number line.



It is 8 places from 20, but it is only 2 places from 30. Since 28 is closer to 30 than to 20, we round 28 to 30. We are saying 28 is approximately 30.

EXAMPLE: Round 1649 to the nearest **hundred**.

Counting by 100's, we get the multiples of 100: 100, 200, 300, ...1500, 1600, 1700... . 1649 is between 1600 and 1700 on the number line.



It is 49 places from 1600.

It is 51 places from 1700.

Since 1649 is closer to 1600 than it is to 1700, we round 1649 to 1600.

2–3. Round as directed.

2. Round 1649 to the nearest ten. _____

3. Round 1649 to the nearest thousand. _____

EXAMPLE: Round 7,500 to the nearest **thousand**.

Multiples of one thousand are:

1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000 ...

On the number line 7,500 is between 7000 and 8000.



It is 500 places from 7,000. It is also 500 places from 8000. It is the same distance from each multiple of 1,000. When this happens, we have the **AGREEMENT** to round to the higher number; therefore, we agree 7,500 rounded to the "nearest thousand" is 8,000.

What is a "quick" way to round a number to a given place value? Look at the digit to the **immediate right** of the place value to which you are asked to round. If that digit is 0, 1, 2, 3 or 4, keep the same digit in the place to which you are rounding and replace each digit to its right with 0. If the digit to the right of the place to be rounded is 5, 6, 7, 8, or 9, add 1 to the digit in the place to be rounded and use zeros in each place to its right.

EXAMPLES:

Round 3,849 to the nearest thousand.

THINK: 3 is in the thousands place.
8 is the digit to its immediate right, so we add 1 to the thousands digit
(3 + 1) and replace the remaining digits with 0.
4,000

Round 2,943 to the nearest 10.

THINK: 4 is the tens place
The digit to the immediate right is 3, so we'll keep the 4 and use zeros in the digit(s)
to its right. (We never subtract from the rounded place's digit.)
2,940

Round 2,498 to the nearest ten.

The "8" to the right of the tens place tells me to add 1 to the 9. Since $9 + 1 = 10$, I'll have to carry.

2,498 rounded to the nearest ten is 2,500.

THINK: 249 Replace the 8 in the one's place with another 0 to get 2500.
 + 1
 250

4–11. Round as directed. Start with the given number each time. (Do not begin with a rounded form of the number.)

4–6. Round 34,850

4. to the nearest ten-thousand

5. to the nearest thousand

6. to the nearest hundred

7–8. Round 249

7. to the nearest ten

8. to the nearest hundred (start with 249)!

9–11. Round 38,259,624

9. to the nearest ten-million

10. to the nearest thousand

11. to the nearest hundred-thousand

ANSWERS:

- | | | |
|-----|-----------------------|---------------------------|
| 1. | <i>a</i> one | <i>f</i> hundred thousand |
| | <i>b</i> ten | <i>g</i> million |
| | <i>c</i> hundred | <i>h</i> ten million |
| | <i>d</i> thousand | <i>i</i> hundred million |
| | <i>e</i> ten thousand | |
| 2. | 1650 | |
| 3. | 2000 | |
| 4. | 30,000 | |
| 5. | 35,000 | |
| 6. | 34,900 | |
| 7. | 250 | |
| 8. | 200 | |
| 9. | 40,000,000 | |
| 10. | 38,260,000 | |
| 11. | 38,300,000 | |

If you have trouble rounding, get help from a lab tutor or your instructor as soon as possible.