

ROUNDING WHOLE NUMBERS & DECIMALS

Rounding makes numbers easier to use, especially when all you need is an estimate. A rounded number has about the same value as the number you start with but is less exact.



KEY POINTS

Rounding

- means to make a number slightly higher or lower than its stated value
- can be used with whole numbers or decimals
- rules:
 - If the number you are rounding to is followed by a 5, 6, 7, 8, or 9, round the number **up**.
 - If the number you are rounding to is followed by a 0, 1, 2, 3 or 4, round the number **down**.
 - All numbers to the right of the place being rounded will be zeros.
- place value:
 - numbers to the left of the decimal are larger, further to the left
 - ones, tens, hundreds, thousands etc.
 - numbers to the right of the decimal are smaller, further to the right
 - tenths, hundredths, thousandths, ten thousandths etc.

PLACE	EXAMPLE
Millions	8,000,000
Hundred thousands	800,000
Ten thousands	80,000
Thousands	8,000
Hundreds	800
Tens	80
Ones	8
Tenths	0.8
Hundredths	0.08
Thousandths	0.008
Ten thousandths	0.0008
Hundred thousandths	0.00008
Millionths	0.000008

Whole numbers

Decimal numbers

Rounding whole numbers:

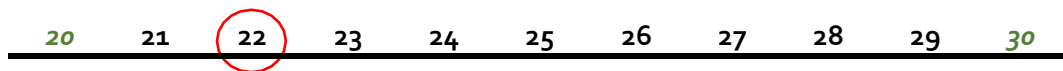
- means to estimate to the nearest ten, hundred, thousand, ten thousand, or higher power of ten
- means to round numbers to the left of the decimal
- the rule is:
 - if the number to be rounded is followed by **5 or higher**, round **UP**
 - if the number to be rounded is **followed by less than 5**, round **DOWN**

Rounding decimals:

- means to estimate to the nearest tenth, hundredth, thousandth or smaller power of ten
- means to round numbers to the right of the decimal
- the rule is the same as for whole numbers

Number lines:

- a number line is a useful tool for checking that a rounding answer is correct, or for practicing rounding
- to create a number line, draw a line and write the span of the number series in which you need to round
- for example, round 22 to the nearest unit of 10. Not sure?
 - draw a line and write the numbers between the two closest tens on the line (the closest units of ten are 20 and 30)
 - find 22 and circle it
 - decide which unit of ten 22 is closest to (20)





STEPS

1. Determine the place value you are rounding to, *tens, hundreds, tenths, hundredths, etc.*, then draw a line under the number in that place.
2. Check the number to the right of the underlined number.
 - If the number to the right is **less than 5** you will round down.
 - If the number to the right is **5 or more**, you will round up.
3. Change all numbers to the right of the underlined number to zeros.



EXAMPLES

1. Round **234** to the nearest ten: 234 is closer to 230 than to 240. Rounded to the nearest 10 the number is 230.

230 231 232 233 **234** 235 236 237 238 239 240

2. Round **2456** to the nearest hundred: 2456 is closer to 2500 than to 2400. Rounded to the nearest hundred the number is 2500.

2400 2410 2420 2430 2440 2450 **2456** 2460 2470 2480 2490 2500

3. Round **4.56** to the nearest tenth: 4.56 is closer to 4.6 than to 4.5. Rounded to the nearest tenth the number is 4.6

4.5 4.51 4.52 4.53 4.54 4.55 **4.56** 4.57 4.58 4.59 4.6

*Think you understand rounding?
Try it yourself on the next page.*

USING THE SKILL



In the Workplace: Workers use rounding when they need to quickly estimate or check amounts of materials, miles, costs or hours, etc.

Questions

Check your understanding of rounding by completing the tasks or answering the questions below.

1. Round 5.36 to the nearest whole number.
2. Round 32.74 to the nearest whole number.
3. Round 10.386 to the nearest tenth.
4. Round 0.4838 to the nearest hundredth.
5. You need a rough budget for construction materials. What is the nearest ten thousand dollars to \$76,690.00?
6. You used \$90.00 cash to pay \$83.68 for some materials. To the nearest whole number, how much change should you have?
7. You need 7.82 cans of paint to cover 782 sq. ft. What is the nearest number of full cans you should buy?



REFLECTION

How do you use rounding at work? When do you use it?