

## Significant Figures Worksheet

How many significant figures are in each of the following numbers?

- 1) 5.40 \_\_\_\_\_
  - 2) 210 \_\_\_\_\_
  - 3) 801.5 \_\_\_\_\_
  - 4) 1,000 \_\_\_\_\_
  - 5) 101.0100 \_\_\_\_\_
  - 6)  $1.2 \times 10^3$  \_\_\_\_\_
  - 7) 0.00120 \_\_\_\_\_
  - 8) 0.0102 \_\_\_\_\_
  - 9)  $9.010 \times 10^{-6}$  \_\_\_\_\_
  - 10) 2,370.0 \_\_\_\_\_
- 11) Why are significant figures important when taking data in the laboratory?
- 12) Why are significant figures NOT important when solving problems in your math class?
- 13) Using two different instruments, I measured the length of my foot to be 27 centimeters and 27.00 centimeters. Explain the difference between these two measurements.
- 14) I can lift a 20 kilogram weight over my head ten times before I get tired. Write this measurement to the correct number of significant figures.

## Significant Figures Worksheet - Answers

How many significant figures are in each of the following numbers?

- |             |          |                           |          |
|-------------|----------|---------------------------|----------|
| 1) 5.40     | <u>3</u> | 6) $1.2 \times 10^3$      | <u>2</u> |
| 2) 210      | <u>2</u> | 7) 0.00120                | <u>3</u> |
| 3) 801.5    | <u>4</u> | 8) 0.0102                 | <u>3</u> |
| 4) 1,000    | <u>1</u> | 9) $9.010 \times 10^{-6}$ | <u>4</u> |
| 5) 101.0100 | <u>7</u> | 10) 2,370.0               | <u>5</u> |

- 11) Why are significant figures important when taking data in the laboratory?  
**Significant figures indicate the precision of the measured value to anybody who looks at the data. For example, if a weight is measured as being “1100 grams”, this means that the mass has been rounded to the nearest hundred grams. If a weight is measured as being “1100.0 grams”, this means that the mass has been rounded to the nearest tenth of a gram. Though the numbers plug into the calculator in exactly the same way, they mean very different things.**
- 12) Why are significant figures NOT important when solving problems in your math class?  
**Math classes don't deal with measured values. As a result, all of the numbers are considered to be infinitely precise.**
- 13) Using two different instruments, I measured the length of my foot to be 27 centimeters and 27.00 centimeters. Explain the difference between these two measurements.  
**As in problem 11, the first measurement implies that my foot is somewhere between 26.5 and 27.4 cm long. The second measurement implies that my foot is between 26.995 and 27.004 cm long. Again, though the numbers plug into the calculator in the same way, they imply different precisions.**
- 14) I can lift a 20 kilogram weight over my head ten times before I get tired. Write this measurement to the correct number of significant figures.  
**The answer is written as 20.0, with a line drawn above the zero in the tenths place. This is one of the few cases where you can measure data with infinite significant figures. After all, I can either lift it or I can't – there's no “half-lift” that would result in a decimal.**