

BOZEMAN SCIENCE VIDEO QUESTIONS SIGNIFICANT FIGURES AND FACTOR LABEL METHOD

While viewing the Bozeman Science video titled "Biology" complete the following questions. You might want to watch the video once through, then watch it a second time stopping it as needed to complete your worksheet.

1. Scientists strive to be _____ and _____.
2. Accuracy is related to _____ or how close you are to the _____ answer.
3. Precision is related to _____.
4. Why is the measurement of 2.55 cm a better answer than 2.5 cm? _____

5. 2.55 cm has how many significant figures? _____
6. Name four types of digits that are significant:

7. Which digits are NOT significant? _____
8. In calculation you have to make sure that your answer is no more _____ than the measurements that you actually made.
9. The number of significant digits in the answer should _____ to the _____ number of significant digits in any of the _____ being _____ or divided.
10. During _____ and _____ the number of _____ places in the answer should _____ to the _____ number of _____ points in any of the _____ being added or subtracted.
11. _____ = _____ factors
12. Given _____ \rightarrow _____ \rightarrow desired _____
13. List the 4 steps to complete the factor label method:
 1. _____
 2. _____
 3. _____
 4. _____

14. The Factor Label Method works with _____ distance or a constant _____ but not both.

APPLY WHAT YOU'VE LEARNED!

Now it's your turn to practice a few problems. Use your class notes and video notes if you need help or view the video a second or third time.

How many significant figures are in each of the following:

15. 17.02 grams _____ 16. 3.0 cm _____ 17. 4.7×10^3 g _____

Solve the next problems making sure to use significant figures in your answer:

18. $2.67 + 1.2 =$ _____ 19. $0.28753 \times 15.4 =$ _____

20. How many days are in week? Show all your work including the crossing out of units.

1 week x 7 days = _____ days
1 _____ week

21. How many minutes are in week? Show all your work including the crossing out of units. If you can, make your answer using significant figures and scientific notation.

1 week x _____ days x _____ X _____ =
1 _____ week

Significant Figures Worksheet

Significant Figures

1. Indicate how many significant figures there are in each of the following measured values.

246.32	_____	1.008	_____	700000	_____
107.854	_____	0.00340	_____	350.670	_____
100.3	_____	14.600	_____	1.0000	_____
0.678	_____	0.0001	_____	320001	_____

2. Calculate the answers to the appropriate number of significant figures.

$$\begin{array}{r} 32.567 \\ 135.0 \\ + 1.4567 \\ \hline \end{array}$$

$$\begin{array}{r} 246.24 \\ 238.278 \\ + 98.3 \\ \hline \end{array}$$

$$\begin{array}{r} 658.0 \\ 23.5478 \\ + 1345.29 \\ \hline \end{array}$$

3. Calculate the answers to the appropriate number of significant figures.

a) $23.7 \times 3.8 =$ _____ f) $1.678 / 0.42 =$ _____

b) $45.76 \times 0.25 =$ _____ g) $28.367 / 3.74 =$ _____

c) $81.04 \text{ g} \times 0.010 =$ _____ h) $4278 / 1.006 =$ _____

d) $6.47 \times 64.5 =$ _____ i) $(6.8 + 4.7) \times 17.44 =$ _____

e) $43.678 \times 64.1 =$ _____ j) $(320. - 22.7) \times 3.8 =$ _____

k) $\frac{(14.86 + 13.7) \times (65.346 - 4.10)}{(43.888 - 32.888)} =$ _____