Significant Digits

1. Non-zero digits **are** significant (1,2,3,4,5,6,7,8, and 9). How many are significant?

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| 0.01426 \_\_\_\_\_\_\_\_\_\_ | 33.817 \_\_\_\_\_\_\_\_\_\_ | 1,418,235 \_\_\_\_\_\_\_\_\_\_ |
| .7 \_\_\_\_\_\_\_\_\_\_ | 9.6 \_\_\_\_\_\_\_\_\_\_ | 46.1 \_\_\_\_\_\_\_\_\_\_ |
| .23 \_\_\_\_\_\_\_\_\_\_ | .4438714 \_\_\_\_\_\_\_\_\_\_ | 48.72 \_\_\_\_\_\_\_\_\_\_ |
| 113 \_\_\_\_\_\_\_\_\_\_ | 6114 \_\_\_\_\_\_\_\_\_\_ | 2 \_\_\_\_\_\_\_\_\_\_ |

2. Zeros that fall in-between non-zero digits **are** significant. How many?

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| --- | --- | --- |
| 30.17\_\_\_\_\_\_\_\_\_\_ | 1004.6\_\_\_\_\_\_\_\_\_\_ | 3,000.0001 \_\_\_\_\_\_\_\_\_\_ |
| 1060.5 \_\_\_\_\_\_\_\_\_\_ | 8,000.7 \_\_\_\_\_\_\_\_\_\_ | 8604 \_\_\_\_\_\_\_\_\_\_ |
| .32000701 \_\_\_\_\_\_\_\_\_\_ | 1.0001 \_\_\_\_\_\_\_\_\_\_ | 5,703.06050 \_\_\_\_\_\_\_\_\_\_ |

3. Zeros to the right of the decimal point, but to the left of a non-zero digit **are not** significant; they serve only to locate the decimal point. How many?

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| 0.0051 \_\_\_\_\_\_\_\_\_\_ | 0.000004 \_\_\_\_\_\_\_\_\_\_ | 0.00205 \_\_\_\_\_\_\_\_\_\_ |
| 0.01 \_\_\_\_\_\_\_\_\_\_ | 0.03808 \_\_\_\_\_\_\_\_\_\_ | 0.000005337 \_\_\_\_\_\_\_\_\_\_ |
| 0.0666 \_\_\_\_\_\_\_\_\_\_ | 0.000465 \_\_\_\_\_\_\_\_\_\_ | 0.000000099 \_\_\_\_\_\_\_\_\_\_ |

4. This first zero is **never** significant; it helps you locate the decimal point. How many?

0.0415 \_\_\_\_\_\_\_\_\_\_ 0.8001 \_\_\_\_\_\_\_\_\_\_ 0.000606 \_\_\_\_\_\_\_\_\_\_

5. Zeros to the right of a non-zero digit and also to the right of the decimal point **are** significant. How many?

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| --- | --- | --- |
| 1.200 \_\_\_\_\_\_\_\_\_\_ | 10.0 \_\_\_\_\_\_\_\_\_\_ | 0.320 \_\_\_\_\_\_\_\_\_\_ |
| 9.100 \_\_\_\_\_\_\_\_\_\_ | 0.0230 \_\_\_\_\_\_\_\_\_\_ | 0.00450 \_\_\_\_\_\_\_\_\_\_ |
| 1200.0 \_\_\_\_\_\_\_\_\_\_ | 70.0 \_\_\_\_\_\_\_\_\_\_ | 0.040 \_\_\_\_\_\_\_\_\_\_ |
| 1.6060 \_\_\_\_\_\_\_\_\_\_ | 1000.0 \_\_\_\_\_\_\_\_\_\_ | 6,501.003 \_\_\_\_\_\_\_\_\_\_ |

6. Zeros to the left of the decimal point (it is understood) and to the right of a non-zero digit are **never** significant; they serve only to locate the decimal point. How many?

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| 3,200 \_\_\_\_\_\_\_\_\_\_ | 400 \_\_\_\_\_\_\_\_\_\_ | 10 \_\_\_\_\_\_\_\_\_\_ |
| 3,000,000 \_\_\_\_\_\_\_\_\_\_ | 789,770 \_\_\_\_\_\_\_\_\_\_ | 300,600 \_\_\_\_\_\_\_\_\_\_ |
| 8,000,850 \_\_\_\_\_\_\_\_\_\_ | 7,000 \_\_\_\_\_\_\_\_\_\_ | 3,000,010 \_\_\_\_\_\_\_\_\_\_ |

7. Caution!! If you put a decimal point after these zeros, you are saying that all of the zeros are significant. How many now?

|  |  |  |
| --- | --- | --- |
| 1000. \_\_\_\_\_\_\_\_\_\_ | 15,000. \_\_\_\_\_\_\_\_\_\_ | 970,000. \_\_\_\_\_\_\_\_\_\_ |
| 40. \_\_\_\_\_\_\_\_\_\_ | 5015.00 \_\_\_\_\_\_\_\_\_\_ | 5600. \_\_\_\_\_\_\_\_\_\_ |