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| **Uncertainty in Measurement:**  When reading an instrument…. Write all the #s you see **+ 1** more that you ***estimate*** | | | |
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| **1.Determine the volume in each image below:** | | | |
|  |  |  |  |

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_\_\_\_\_**Sig Fig Practice**

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| --- | --- | --- | --- | --- | --- |
| **2. Determine the length in each centimeter rulers right:** | [http://2012books.lardbucket.org/books/introduction-to-chemistry-general-organic-and-biological/section_04/4ea27ad91c2b3bbacd8630b1666c39b0.jpg](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=l2mm5nd7nfbaAM&tbnid=mqJKakqxX1jEIM:&ved=0CAUQjRw&url=http://2012books.lardbucket.org/books/introduction-to-chemistry-general-organic-and-biological/s04-05-expressing-numbers-significant.html&ei=S-tAUoH7FsfQyAHjxIGgAQ&psig=AFQjCNFN_QIUnwPEKwX_y01aK5BxSKuiOg&ust=1380072591766708) | | [http://www.ucolick.org/~crockosi/AY2Rockosi2012/MathReview/Sigfigs/Image1.gif](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=AT-9--I5mizF0M&tbnid=NVzM6MJbGgwg4M:&ved=0CAUQjRw&url=http://www.ucolick.org/~crockosi/AY2Rockosi2012/MathReview/Sigfigs/sigfigs.html&ei=H-tAUvvLLerJygGQnYGYDA&psig=AFQjCNFN_QIUnwPEKwX_y01aK5BxSKuiOg&ust=1380072591766708) | | |
| http://cyberbridge.mcb.harvard.edu/images/math2_2.pnghttp://cyberbridge.mcb.harvard.edu/images/math2_1.png | | | | |
| http://wpscms.pearsoncmg.com/wps/media/objects/1860/1905663/mathtutorial/rulers.gif | | | | |
|  | | | | | |
| **Sig Fig Rules**  1. Count all non-zero # s:1234 = 4 sig figs 100 = 1 sig figs  2. Count zeros that are in b/w non-zero #s: 708 = 3 sig figs 1008 = 4 sig figs  3. If # is **less** than **1**, count **all** # after the first real # : 0.000987= 3 sig figs 0.009870 = 4 sig figs  *do not count the zeros to the left of the first real #*  4.If # is **greater** than **zero** **&** a **decimal point** is present, count all #s: 101.2 = 4 sig figs 1000.000= 7 sig figs | | | | | |
|  | | | | | |
| **3. Determine the number of sig figs in each value** | | | | | |
| 213 mg | | 3001 dm | | 81000 pg | 6.00 L |
| 0.0021km | | 0.420 g | | 92.00 cm | 781 m |

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| --- | --- | --- | --- | --- | --- | --- |
| **Adding & Subtracting Sig Fig Rules**  5.00 cm  - 4.352 cm  0.648 cm =**0.65 cm**    0.648 cm =**0.65 cm**   1. add or subtract the numbers 2. keep all whole numbers 3. round the decimal to the **least number** of **decimal** places | | | | | | |
|  | | | | | | |
| **4. Determine the answer in terms of sig figs:** | | | | | | |
| 43.8316 sec  -29.5706 sec | 0.0677 mL  48.1 mL  +82.7655 mL | | | 27.34 km  6.90 km  +13.124 km | | 2.8023 grams  -4.762 grams |
| 334.540 grams  + 198.9916 grams | 248.01010 kilograms +84.097 kilograms | | | 0.0610 m  – 0.18 m | | 50.2 miles  – 0.500 miles |
| 0.04216 days  - 0.0004134 days | 23.1 hours  + 4.77 hours  + 125.39 hours  + 3.581 hours | | | 3.461728 grams  + 14.91 grams  + 0.980001 grams  + 5.2631 grams | | 349.0 cm  + 1.10 cm  + 100. cm |
|  | | | | | | |
| **Multiplying & Dividing Sig Fig Rules**  6.7 cm x 1.1 cm= 7.37 cm2 = **7.4 cm2**   1. multiply or divide # s 2. count the TOTAL number of sig figs in each 3. Round to the least # of TOTAL sig figs | | | | | | |
|  | | | | | | |
| 5. Determine the answer in terms of sig figs: | | | | | | |
| 2.61 x 106 joules  0.0034 seconds | 24.1 miles  0.005 hour | | 34 grams  10.1 mL | | | 252 meters  910 seconds |
| 0.0222 mm x 0.7000mm x 8.702mm | | | 0.32cm x 14.50cm x 120cm | | | 1.80m x 25.3m |
| 1010 cm x 3001cm x 216 cm | | | 6.450dm x 1.010dm | | | 0.61mm x 42.1mm |
|  | | | | | | |
| 6. Determine the answer in terms of sig figs: | | | | | | |
| (320. - 22.7) x 3.8 | | (1.80 x 3.4) + 32.00 | | | (1.80 x 25.3) + 32 | |
| (6.8 + 4.701)  ­ (21.25 - 18) | | (3.65 x 2.10)  (2.1134 x 42.1) | | | (14.86 + 13.7) x (65.346 - 4.10)  (43.888 - 32.888) | |
| Average the following masses: 0.621g, 1.614g, 0.08456g, 0.4g | | | | | | |