

42. How many significant figures do each of the following measurements have?
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|-------------|-----------|------------------|---------------------|
| (a) 1.25 kg | (c) 11 s | (e) 1.283 cm | (g) 2 000 000 years |
| (b) 1255 kg | (d) 150 m | (f) 365.249 days | (h) 17.25 L |

55. State the number of significant figures in each of the following.

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| (a) 3570 | (c) 41.400 | (e) 0.000 572 | (g) 41.50×10^{-4} | (i) $1.234\ 00 \times 10^8$ |
| (b) 17.505 | (d) 0.51 | (f) 0.009 00 | (h) $0.007\ 160 \times 10^5$ | (j) $0.000\ 410\ 0 \times 10^7$ |

56. Perform the indicated operations and give the answer to the correct number of significant figures.

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| (a) 12.5×0.50 | (e) $(6.40 \times 10^8) \times (5 \times 10^5)$ | (i) 4.75×5 |
| (b) 0.15×0.0016 | (f) $4.37 \times 10^3 / 0.008\ 560\ 0$ | (j) $0.000\ 01 / 0.1000$ |
| (c) $40.0 / 30.0000$ | (g) 51.3×3.940 | (k) $7.4 / 3$ |
| (d) $2.5 \times 7.500 / 0.150$ | (h) $0.51 \times 10^{-4} / 6 \times 10^{-7}$ | (l) $0.000\ 43 \times 0.005\ 001$ |

57. Perform the indicated operations and give the answer to the correct number of significant figures.

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| (a) $15.1 + 75.32$ | (f) $0.000\ 048\ 1 - 0.000\ 817$ |
| (b) $178.904\ 56 - 125.8055$ | (g) $7.819 \times 10^5 - 8.166 \times 10^4$ |
| (c) $4.55 \times 10^{-5} + 3.1 \times 10^{-5}$ | (h) $45.128 + 8.501\ 87 - 89.18$ |
| (d) $0.000\ 159 + 4.0074$ | (i) $0.0589 \times 10^{-6} + 7.785 \times 10^{-8}$ |
| (e) $1.805 \times 10^4 + 5.89 \times 10^2$ | (j) $89.75 \times 10^{-12} + 6.1157 \times 10^{-9}$ |

58. Perform the indicated operations and give the answer to the correct number of significant figures.

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| (a) $7.95 + 0.583$ | (f) $45.9 - 15.0025$ |
| (b) $1.99 / 3.1$ | (g) 375.59×1.5 |
| (c) $4.15 + 1.582 + 0.0588 - 35.5$ | (h) $5.1076 \times 10^{-3} - 1.584 \times 10^{-2} + 2.008 \times 10^{-3}$ |
| (d) $1200.0 / 3.0$ | (i) $1252.7 - 9.4 \times 10^2$ |
| (e) $5.31 \times 10^{-4} / 3.187 \times 10^{-8}$ | (j) $0.024\ 00 / 6.000$ |

59. In the following mixed calculations perform multiplications and divisions before doing the additions and subtractions. Keep track of the number of significant figures at each stage of a calculation.

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| (a) $25.00 \times 0.1000 - 15.87 \times 0.1036$ | (e) $\frac{3.65}{0.3354} - \frac{6.14}{0.1766}$ |
| (b) $35.0 \times 1.525 + 50.0 \times 0.975$ | (f) $\frac{5.3 \times 0.1056}{0.1036 - 0.0978}$ |
| (c) $(0.865 - 0.800) \times (1.593 + 9.04)$ | (g) $(0.341 \times 18.64 - 6.00) \times 3.176$ |
| (d) $\frac{(0.3812 + 0.4176)}{(0.0159 - 0.0146)}$ | (h) $9.34 \times 0.071\ 46 - 6.88 \times 0.081\ 15$ |