Fill in your answer choice:

1. **Dimensional analysis** is a
   A. ratio of equivalent values used to express the same quantity in different units
   B. technique of solving problems using units of measurement
   C. difference between the accepted and experimental values

2. **Precision**
   A. is a standard of measurement; a single undivided whole
   B. refers to how close measured values are to one another
   C. sets the freezing point of water at 273.15 K and the boiling point of water at 373.15 K
   \( \text{K} = ^\circ \text{C} + 273.15 \)

3. All of the following measurements have five significant figures EXCEPT ______.
   A. 30.003 mL
   B. 33.003 mL
   C. 0.00333 mm
   D. 0.33300 mg
   E. 33003 L

4. When dividing 0.403 m by 50.04 s, your answer should be rounded to a value that includes three significant figures.
   A. True
   B. False

5. The measurement 240 L has 3 significant figures.
   A. True
   B. False

6. A zero appearing between nonzero digits in a measurement is not significant.
   A. True
   B. False

7. The measurement 0.00005 mg has one significant figure.
   A. True
   B. False

8. When adding 59.0 Kg plus 5.90 Kg plus 5.004 Kg, your answer should be rounded to a value that includes two significant figures.
   A. True
   B. False

9. \[ 0.006 \text{ m} + 9.12 \text{ m} = \] _______________

10. \[ 8.80 \text{ L} - 7.7 \text{ L} = \] _______________

11. \[ 9.00 \text{ Kg} \times 0.90 = \] _______________

12. \[ 7.4000 \text{ cm} \div 0.024 = \] _______________
Use dimensional analysis to reduce the following conversion-factor equations:

13. $6 \text{ cm} \times \frac{10 \text{ mm}}{1 \text{ cm}} = \underline{\phantom{10000}}$

14. $5 \text{ L} \times \frac{100 \text{ cL}}{1 \text{ L}} = \underline{\phantom{10000}}$

15. $\frac{1 \text{ g}}{300 \text{ mg}} \times \frac{1 \text{ Kg}}{1000 \text{ mg}} \times \frac{1000 \text{ g}}{1 \text{ Kg}} = \underline{\phantom{10000}}$

16. $\frac{45 \text{ ft} \times \text{ lb}}{5 \text{ ft}} = \underline{\phantom{10000}}$

17. Write a four-digit measurement that has two significant digits and no decimals. $
\underline{\phantom{00000}}$

18. Write a three-digit measurement that has three significant digits, two decimal places and ends in 0. $
\underline{\phantom{00000}}$

19. Complete this measurement so it has five significant digits: $7\underline{0.0}\underline{\phantom{00}} \text{ Km}$

20. Complete this measurement so that it has six significant digits: $0.0\underline{7} \underline{00} \underline{\phantom{000}} \text{ cg}$