

Measurement 1

Magnitude

1. diameter of proton (in meters) _____
2. diameter of hydrogen atom _____
3. radius of the observable universe _____

4. mass of electron (in kilograms) _____
5. mass of proton _____
6. mass of the universe and everything _____

7. heartbeat (in seconds) _____
8. age of universe _____

9. weight of an apple _____
10. ratio of hydrogen atom to a proton _____

Units

11. Name the seven fundamental units.
12. What fundamental units make up a Newton?
13. What fundamental units make up a Joule?
14. What fundamental units make up a Watt?

Errors

15. Name a cause of systematic error.
16. What does systematic error do to a linear graph?
17. An experiment with small systematic error is _____.
18. Name a cause of random error.
19. What does random error do to a linear graph?
20. An experiment with small random error is _____.
21. Which error can be reduced with repeated measurement?
A 12 Volt battery is measured to be 10.267 Volts.
22. Is this accurate?
23. Is this precise?

Uncertainty

24. On an analogue scale, the uncertainty is _____.
25. A 1000 ml beaker is marked off every 100 ml. What the uncertainty be in measuring 820 mL.
26. On a digital scale, the uncertainty is _____.
27. Find the uncertainty in the following readings:
5.01, 5.04, 4.98, 4.87, 5.06, and 4.72.