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DATE _____ PERIOD _____ NAME _____

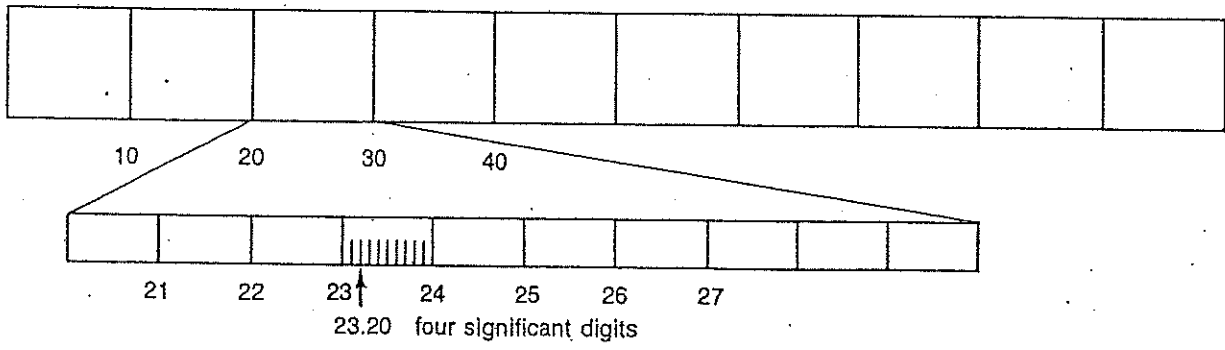
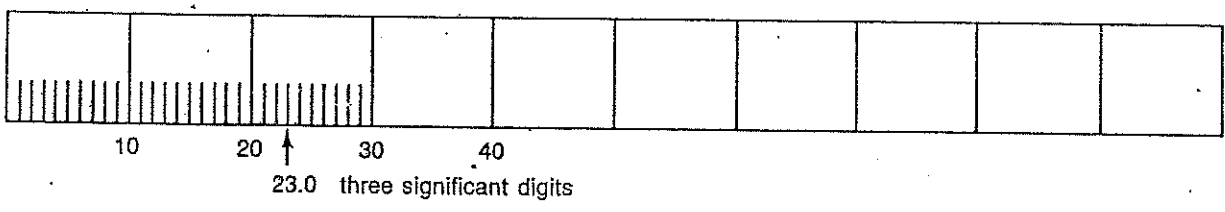
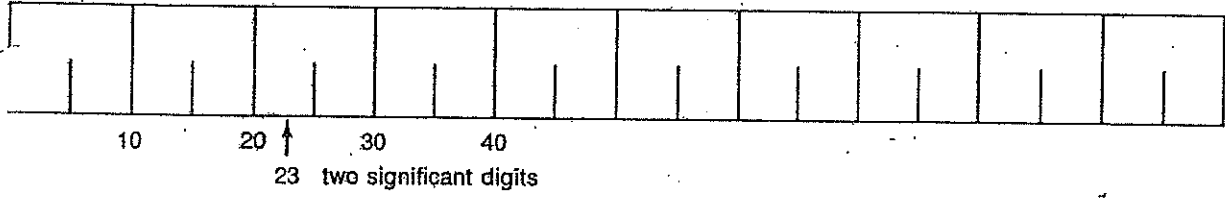
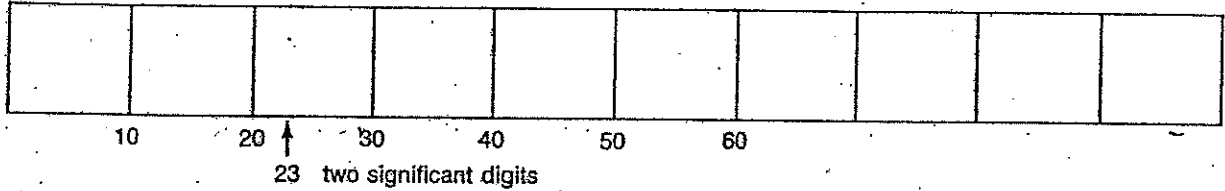


Physics Skill

Measurement and Significant Digits
~~Use with Chapter 2~~

RECORDING MEASUREMENTS

Look at the four meter sticks shown. As you proceed down the page, each meter stick has more divisions marked. When you read any scale, you always record the measurement by reading the smallest division on the scale and then "guessing at," or estimating, the tenth of the smallest division. As you proceed down the page you can see how your measurement becomes more precise, and you have more significant digits in your reading. A significant digit is a digit that has physical meaning.



2 Physics Skill

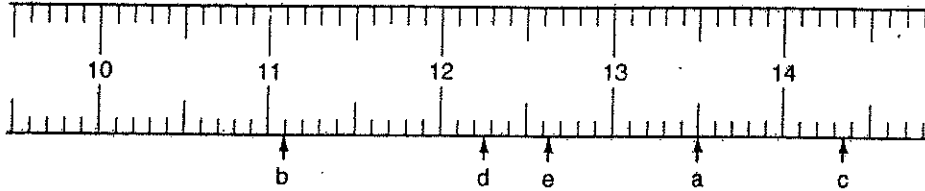
NAME _____

(2)

For the instruments shown below, record the correct reading.

1.

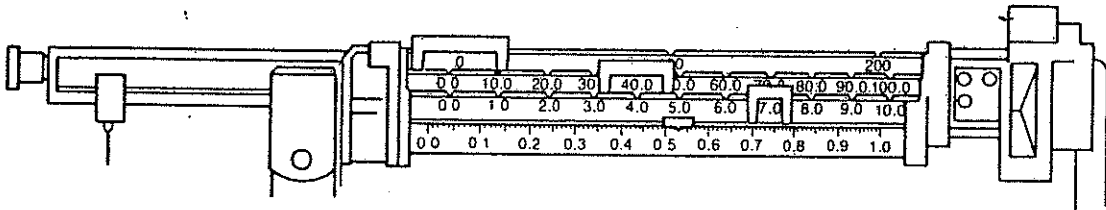
Metric Ruler



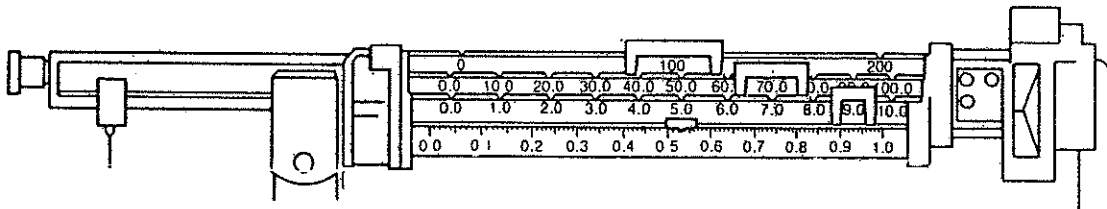
a. _____ b. _____ c. _____ d. _____ e. _____

2.

Balance

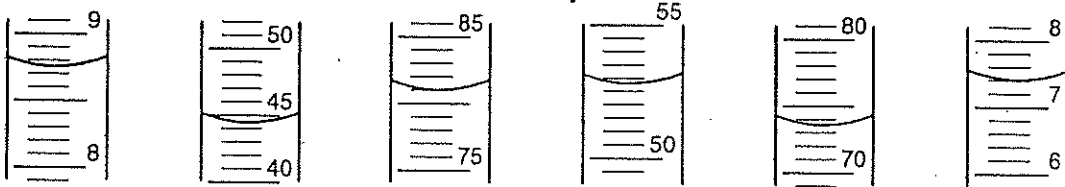


a. _____



3.

Graduated Cylinder



a. _____ b. _____ c. _____ d. _____ e. _____ f. _____

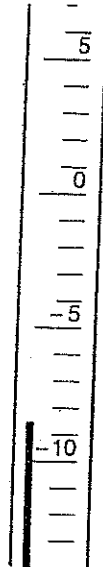
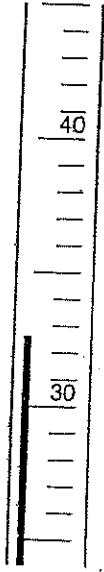
2 Physics Skill

NAME _____

3

4.

Thermometer



a. _____ b. _____ c. _____ d. _____ e. _____ f. _____

Significant Digits Review

Give the solution and explain the rule for each of the following cases:

Addition

$$12.450 \text{ cm} + 0.04 \text{ cm} = \underline{\hspace{2cm}}$$

The rule:

Subtraction

$$112.250 \text{ cm} - 10.4 \text{ cm} = \underline{\hspace{2cm}}$$

The rule:

Multiplication

$$18.650 \text{ cm} \times 0.04 \text{ cm} = \underline{\hspace{2cm}}$$

The rule:

Division

$$12.450 \text{ cm}^2 \div 10.0 \text{ cm} = \underline{\hspace{2cm}}$$

The rule:

Name: _____

Block: _____

Express ALL answers to the appropriate number of significant digits.

1. How many significant digits are in each of the following numbers?

- (a) 8.0 m _____
- (b) 0.000246 cm _____
- (c) 2.050 kg _____
- (d) 1.615×10^8 m _____
- (e) 2.40×10^4 s _____
- (f) 50600 m _____

2. Put the following into scientific notation:

- (a) 50.6 _____
- (b) 7809 _____
- (c) 0.08 _____
- (d) 284 000 _____
- (e) 0.00000211 _____

3. Write the following in expanded form:

- (a) 1.35×10^5 _____
- (b) 2.4506×10^{-2} _____
- (c) 7.5×10^3 _____
- (d) 1.300×10^{-7} _____

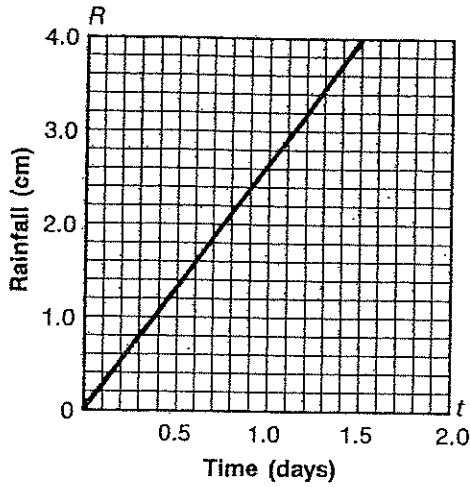
4. Calculate the following and express the answer in **scientific notation** with the correct number of **significant digits** and correct **units**.

- (a) A wall measures 2.23m by 2.4m. Find the area. _____
- (b) divide 234.8cm^2 by 3.13cm _____
- (c) $\frac{89.05\text{g/mL} \times 5.762\text{mL}}{1.2\text{mL}}$ _____
- (d) $3.982454\text{cm} \times 8.3\text{cm}$ _____
- (e) $15.378\text{mm} + 0.25\text{mm}$ _____
- (f) $45.787\text{m}^3 + 2.1\text{m}^3$ _____
- (g) $1.0001\text{mm} - 0.01\text{mm}$ _____
- (h) $12.768\text{kg} - 1.02\text{kg}$ _____
- (i) $2.5 \times 10^{-8}\text{g} + 1.4 \times 10^{-7}\text{g}$ _____

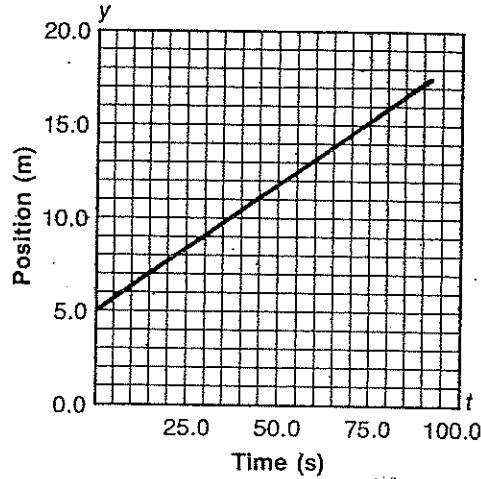
DETERMINING RELATIONSHIPS FROM GRAPHS

When data are plotted and the curve of the graph is a straight line, the relationship between the independent and dependent variables is described as a linear relationship. All such relationships can be described by the general equation $y = mx + b$. In this equation, m is the slope of the line and b is the y -intercept. For each graph shown, calculate the slope and identify the y -intercept. Then write the equation that describes the relationship shown in the graph. Be sure to include the appropriate units in your equations.

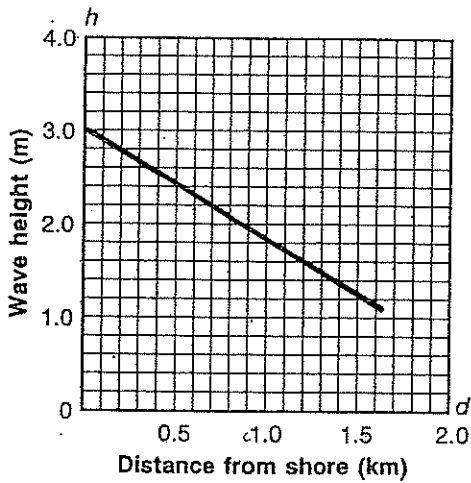
Rainfall versus Time



Position versus Time



Wave Height versus Distance



Wages versus Workdays

