

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Block: \_\_\_\_\_

### Metric Conversions, Measure Sig Figs, Count Sig Figs, & Round Sig Figs HW

1. Convert each of the following quantities to the required unit.

a.  $5.2 \text{ cm} \times 10^{-2}$  of magnesium to 52  $\text{mm}$  of magnesium  $\times 10^{-3}$

*5.2 Right one*

b.  $0.049 \text{ kg} \times 10^3$  of sulfur to 49  $\text{g}$  of sulfur  $\times 10^0$

*0.049 Right 3x*

c.  $1.60 \text{ mL} \times 10^{-3}$  of ethanol to 1600  $\mu\text{L}$  of ethanol  $\times 10^{-6}$

*1.60 Right 3x*

d.  $0.020 \text{ kg} \times 10^3$  of tin to 20000  $\text{mg}$  of tin  $\times 10^{-3}$

*0.020 Right 6x*

e.  $3 \text{ kL} \times 10^3$  of saline solution to 3000  $\text{L}$  of saline solution  $\times 10^0$

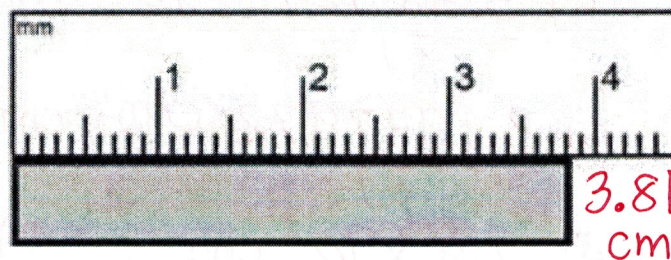
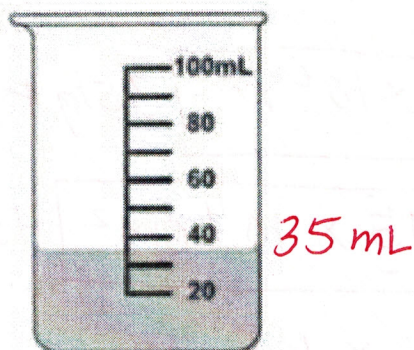
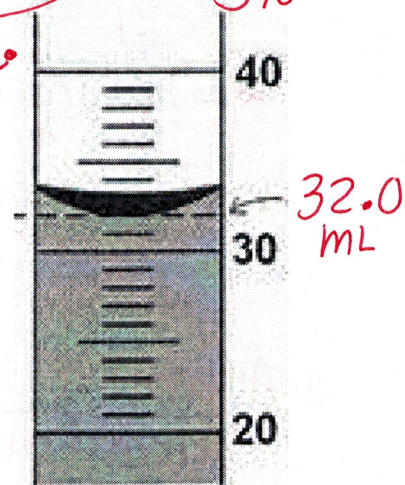
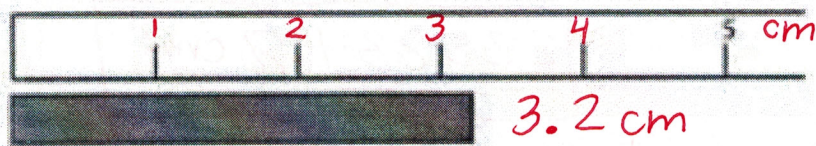
*3. Right 3x*

2. A chemistry teacher needs to determine what quantity of sodium hydroxide to order. If each student will use 130 g and there are 150 students, how many kilograms of sodium hydroxide should the teacher order?

$$(130 \text{ g})(150) = 19500 \text{ g} = \frac{19500}{1000} \text{ kg} = 19.5 \text{ kg}$$

*Left 3x*

3. Measure the following:



4. Determine the number of significant figures in the following measurements.

a. 640 cm<sup>3</sup> 2

f. 20.900 cm 5

b. 200.0 mL 4

g. 0.000 000 56 g/L 2

c. 0.5200 g 4

h. 0.040 02 kg/m<sup>3</sup> 4

d. 1.005 kg 4

i. 790 001 cm<sup>2</sup> 6

e. 10 000 L 1

j. 665.000 kg•m/s<sup>2</sup> 6

5. Round the following quantities to the specified number of significant figures.

\* a. 5 487 129 m to three significant figures 5490 000 m 3 sig Figs ✓

b. 0.013 479 265 mL to six significant figures 0.013479 3 mL 6 sig Figs ✓

\* c. 31 947.972 cm<sup>2</sup> to four significant figures 31950 cm<sup>2</sup> 4 sig Figs ✓

d. 192.6739 m<sup>2</sup> to five significant figures 192.67 m<sup>2</sup> 5 sig Figs ✓

\* e. 786.9164 cm to two significant figures 790 cm 2 sig Figs ✓

\* f. 389 277 600 J to six significant figures 389278000 J 6 sig Figs ✓

g. 225 834.762 cm<sup>3</sup> to seven significant figures 225834.8 cm<sup>3</sup>

\* Alternative Method - Convert to scientific notation before rounding for sig figs

a) 5.487129 × 10<sup>6</sup> m = 5.49 × 10<sup>6</sup> m 3 sig Figs ✓

c) 3.1947972 × 10<sup>4</sup> cm<sup>2</sup> = 3.195 × 10<sup>4</sup> cm<sup>2</sup> 4 sig Figs ✓

e) 7.9 × 10<sup>2</sup> cm

f) 3.89278 × 10<sup>8</sup> J