

## Skills Review: Measurement and Dimensional Analysis

Use dimensional analysis to convert each measurement. Round to the nearest hundredth.

Show all work below each problem! Don't forget your units ☺

$$1) 30 \text{ mg} = \underline{0.03} \text{ g}$$

$$\frac{30 \text{ mg}}{1} \cdot \frac{1 \text{ g}}{1000 \text{ mg}} = 0.03 \text{ g}$$

$$2) 25 \text{ mg} = \underline{0.000025} \text{ kg}$$

$$\frac{25 \text{ mg}}{1} \cdot \frac{1 \text{ kg}}{1000000 \text{ mg}} = 0.000025 \text{ kg}$$

$$3) 72.2 \text{ cm} = \underline{0.722} \text{ m}$$

$$\frac{72.2 \text{ cm}}{1} \cdot \frac{1 \text{ m}}{100 \text{ cm}} = 0.722 \text{ m}$$

$$4) 6 \text{ km} = \underline{6000} \text{ m}$$

$$\frac{6 \text{ km}}{1} \cdot \frac{1000 \text{ m}}{1 \text{ km}} = 6000 \text{ m}$$

$$5) 17.5 \text{ L} = \underline{17500} \text{ mL}$$

$$\frac{17.5 \text{ L}}{1} \cdot \frac{1000 \text{ mL}}{1 \text{ L}} = 17500 \text{ mL}$$

$$6) 0.0003 \text{ kL} = \underline{0.3} \text{ L}$$

$$\frac{0.0003 \text{ kL}}{1} \cdot \frac{1000 \text{ L}}{1 \text{ kL}} = 0.3 \text{ L}$$

$$7) 21.5 \text{ mL} = \underline{0.0215} \text{ L}$$

$$\frac{21.5 \text{ mL}}{1} \cdot \frac{1 \text{ L}}{1000 \text{ mL}} = 0.0215 \text{ L}$$

$$8) 4.2 \text{ g} = \underline{4200} \text{ mg}$$

$$\frac{4.2 \text{ g}}{1} \cdot \frac{1000 \text{ mg}}{1 \text{ g}} = 4200 \text{ mg}$$

$$9) 4.9 \text{ mm} = \underline{0.49} \text{ cm}$$

$$\frac{4.9 \text{ mm}}{1} \cdot \frac{1 \text{ cm}}{10 \text{ mm}} = 0.49 \text{ cm}$$

$$10) 120 \text{ in} = \underline{10} \text{ ft}$$

$$\frac{120 \text{ in}}{1} \cdot \frac{1 \text{ ft}}{12 \text{ in}} = \frac{120}{12} = 10 \text{ ft}$$

$$11) 6.7 \text{ sec} = \underline{0.11} \text{ min}$$

$$\frac{6.7 \text{ sec}}{1} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = 0.11 \text{ min}$$

$$12) 45 \text{ yds} = \underline{135} \text{ ft}$$

$$\frac{45 \text{ yds}}{1} \cdot \frac{3 \text{ ft}}{1 \text{ yd}} = 45(3) \text{ ft}$$

$$13) 15 \text{ mi} = \underline{79200} \text{ ft}$$

$$\frac{15 \text{ mi}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ mi}} = (15)(5280) \text{ ft}$$

$$14) 72 \text{ days} = \underline{0.20} \text{ yr}$$

$$\frac{72 \text{ days}}{1} \cdot \frac{1 \text{ yr}}{365 \text{ days}} = \frac{72}{365} \text{ yr}$$

$$15) 13 \text{ gal} = \underline{52} \text{ qts}$$

$$\frac{13 \text{ gal}}{1} \cdot \frac{4 \text{ qts}}{1 \text{ gal}} = (13)(4) \text{ qts}$$

$$16) 34 \text{ hr} = \underline{122,400} \text{ sec}$$

$$\frac{34 \text{ hr}}{1} \cdot \frac{60 \text{ min}}{1 \text{ hr}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} = (34)(60)(60) \text{ sec}$$

Warm up Day 3 →

$$17) 12 \text{ mi} = \underline{760,320} \text{ in}$$

$$\frac{12 \text{ mi}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ mi}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} = 760,320 \text{ in}$$

$$18) 124 \text{ pts} = \underline{15.5} \text{ gal}$$

$$\frac{124 \text{ pts}}{1} \cdot \frac{1 \text{ gal}}{8 \text{ pts}} = \frac{124}{8} \text{ gal}$$

$$19) 45 \text{ mph} = \underline{66} \text{ ft/sec}$$

$$\frac{45 \text{ mi}}{1 \text{ hr}} \cdot \frac{5280 \text{ ft}}{1 \text{ mi}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = 66 \text{ ft/sec}$$

$$20) 14 \text{ oz/min} = \underline{0.01} \text{ lbs/sec}$$

$$\frac{14 \text{ oz}}{1 \text{ min}} \cdot \frac{1 \text{ lb}}{16 \text{ oz}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = \frac{14 \text{ lb}}{(16)(60) \text{ sec}} = \frac{14 \text{ lb}}{960 \text{ sec}} = 0.01$$

$$21) 56 \text{ cm/sec} = \underline{48384} \text{ m/day}$$

$$\frac{56 \text{ cm}}{1 \text{ sec}} \cdot \frac{1 \text{ m}}{100 \text{ cm}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} \cdot \frac{24 \text{ hr}}{1 \text{ day}} = \frac{4838400 \text{ hr}}{100 \text{ day}}$$

$$22) 11 \text{ qts/sec} = \underline{79200} \text{ pts/hr}$$

$$\frac{11 \text{ qt}}{1 \text{ sec}} \cdot \frac{2 \text{ pts}}{1 \text{ qt}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = \frac{79200 \text{ pts}}{1 \text{ hr}}$$

$$23) 90 \text{ ft/min} = \underline{1.02} \text{ mph}$$

$$\frac{90 \text{ ft}}{1 \text{ min}} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = \frac{5400 \text{ mi}}{5280 \text{ hr}}$$

$$24) 18 \text{ kg/hr} = \underline{30} \text{ g/min}$$

$$\frac{18 \text{ kg}}{1 \text{ hr}} \cdot \frac{1000 \text{ g}}{1 \text{ kg}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} = \frac{18000 \text{ g}}{60 \text{ min}}$$