

# March 1st

- exam will be available on gradescope wednesday 3.3
- will be questions we did in class
- reminder: recordings are on  
BB  $\rightarrow$  Collaborate  $\rightarrow$   $\equiv$   $\rightarrow$  Recordings
- lecture notes are linked  
on syllabus  $\rightarrow$  Schedule.
- Today: 11.1 - 3

# Practice Exercises for Section 11.1

① How many feet are in 1 mile? How many ounces are in 1 pound? How many pounds are in 1 ton?

$$1 \text{ mi.} = 5280 \text{ ft.}$$

$$1 \text{ lb.} = 16 \text{ oz.}$$

$$1 \text{ ton} = 2000 \text{ lbs.}$$

② What is the difference between 1 ounce and 1 fluid ounce?

mass volume

③ What is special about the way units in the metric system are named?

1 cubic centimeter  
1 cm<sup>3</sup>

it is base 10

1 cu cm is 1 mL  
• 1 mL (1 cu cm) of water weighs 1 gram

④ How is 1 milliliter related to 1 gram and to 1 centimeter?

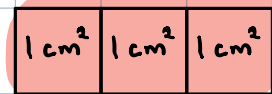
⑦ Which of the following have the same area or mean the same as 3 cm<sup>2</sup>?

• a 3-cm-by-3-cm square

• 3 square centimeters

same

or 3 sq cm



3 cm<sup>2</sup>

(a.k.a. 3 sq cm)

not 3 cm<sup>2</sup>  
3 cm × 3 cm

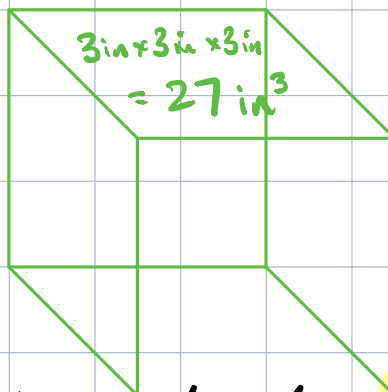
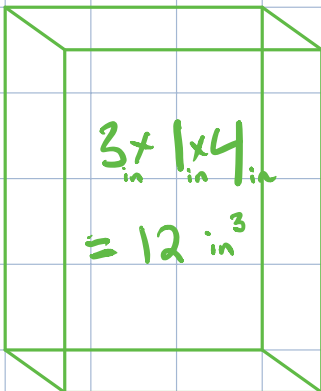
⑧ A construction site requires 40 cubic yards of concrete. What does "40 cubic yards of concrete" mean?

see next page

⑨ Explain how it could happen that each of two boxes of cereal could be described as larger than the other.

so we need to specify exactly what we're measuring.

We could weigh the boxes and see which is heavier.

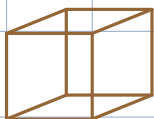


We could also be talking about  
 $L \times W \times H = \text{Volume of the box.}$

We could be talking about the height when we say "the box doesn't fit on the shelf."

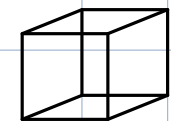
8. A construction site requires 40 cubic yards of concrete. What does "40 cubic yards of concrete" mean?

1 cubic yard (1 cu yd or  $1 \text{ yd}^3$ )



Does 40 cu yd mean a  ~~$40 \text{ yd} \times 40 \text{ yd} \times 40 \text{ yd}$~~  cube of concrete? No.

We need 40 of  
these  
cubes:



1 cubic yard

(That's the volume of concrete we need.)

Volume is 3-dimensional.  
Area is 2-dimensional.