**1.3 Converting Between SI and Imperial Units**

Goals

* Comparing SI and imperial units using referents
* Solving problems that involve conversions of linear measurements between SI and Imperial Units
* Using Mental Mathematics to confirm the reasonableness of a solution to a conversion problem.

Vocabulary

None

UnitConversions

1 Inch= \_\_\_\_\_\_\_\_\_\_ cm

1 ft = \_\_\_\_\_\_\_\_\_\_ cm

1 yd = \_\_\_\_\_\_\_\_\_\_\_ m

1 mm = \_\_\_\_\_\_\_\_\_\_ inches

1 cm = \_\_\_\_\_\_\_\_\_\_ inches

1 m = \_\_\_\_\_\_\_\_\_ yd

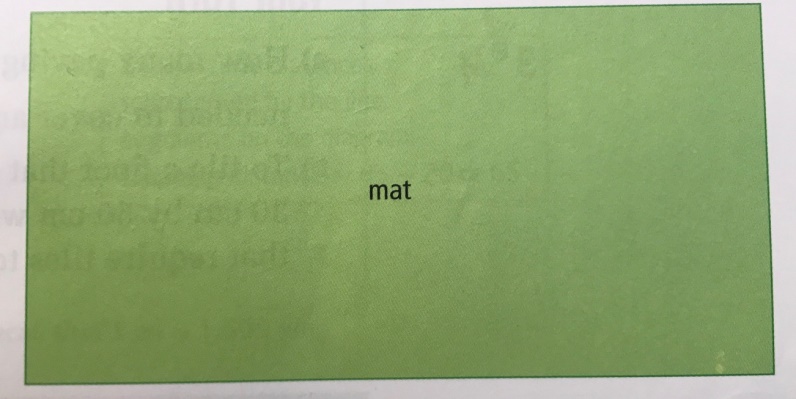
1 m = \_\_\_\_\_\_\_\_\_ ft

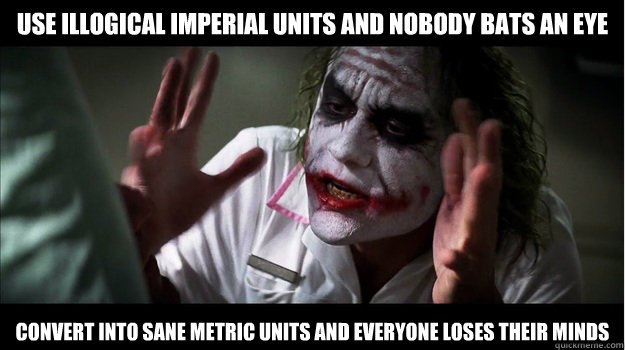
1 km = \_\_\_\_\_\_\_\_\_\_ mi

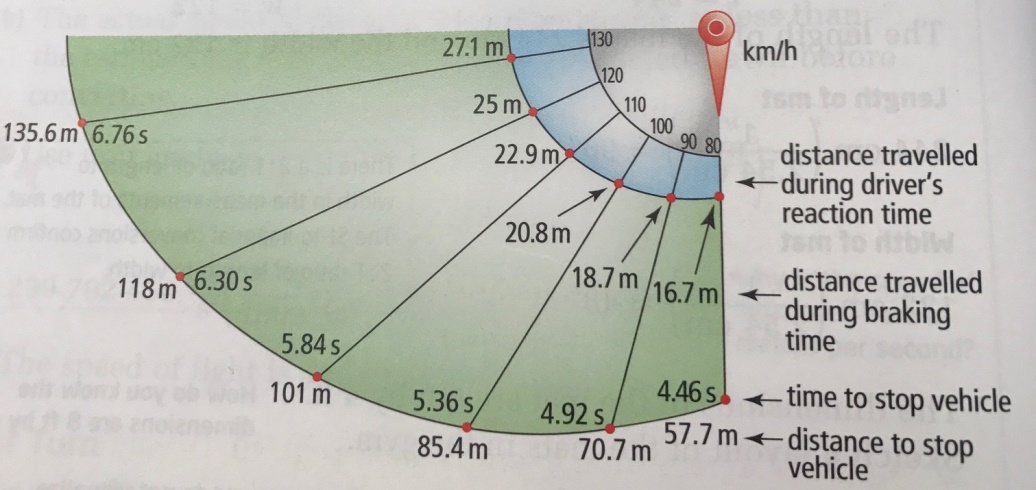
1 mi = \_\_\_\_\_\_\_\_\_\_ km

Examples

1. Researchers at Harvard-Smithsonian Center for Astrophysics made an announcement in January, 2001. They stated that they had “frozen-light” by using super-cooled vapour to slow the speed of light waves to zero. The speed of light in a vacuum is defined at 299 792 458 m/s.
   1. Estimate the speed of light in miles per second
   2. Predict whether the actual speed of light is greater than your estimate. Justify your prediction.
   3. Calculate the answer to the nearest mile per second and mile per hour
2. Your class needs to lay mats on the gymnasium floor for a gymnastic meet. The gym measures 84’ by 50’. The scale drawing of one mat is shown and the scale is 1: 30.5. A classmate thinks 131 mats are needed. Do you agree? Explain.





1.  The distance required to stop a moving vehicle is the sum of the distances travelled during the reaction time and the braking time. The diagram shows the theoretical stopping distance at various speeds.
   1. What factors might affect the reaction time and braking distances?
   2. If a vehicle is travelling 100 km/h, approximately what distance is travelled while the brakes are being applied?
   3. Convert 55 mph into kilometers per hour. Which is the approximate stopping distance when a vehicle is travelling at this speed? Express your answers in feet.

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