

## Exercises

KEEP IN MIND WHEN PRACTICING:

- Do these exercises on a separate piece of paper, showing all of your work. **This will NOT be graded** but showing your work is good practice.
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- You **do not** need to know English to metric conversions by memory. ~~You can refer to the back cover of your textbook for conversions that you may need.~~ They will ~~also~~ be provided on exams.

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### I. Jabberwocky

This exercise is to reinforce the concept that problems are set up based on UNITS. Nonsense words taken from the poem *Jabberwocky* (from Lewis Carroll's *Through the Looking Glass*)

There are 20 tumtum trees in the tulgey wood.

In each tulgey wood is one frumious Bandersnatch.

There are 5 slithy toves in 2 borogoves.

There are 2 mome raths per Jabberwock.

There are 2 Jubjub birds in 200 tumtum trees.

There are 200 mome raths in each borogove.

There are 5 Jubjub birds per slithy tove.

**The question is: If there are 5 frumious Bandersnatches, how many Jabberwocks are there?**

**You should use a dimensional analysis setup to show your work!**

***HINT: What information above is a conversion factor and what information is not?***

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II. If you have done the previous problem correctly, you have just done a “multi-step conversion” problem (a problem that involves more than one conversion factor). Here is some practice with multi-step conversions.

1. Calculate the cost of gasoline for a 420 mile trip if your car averages 20 miles/gal of gas, and the gas costs \$0.95/gallon.

Gasoline for the 420 mile trip costs approximately \$ \_\_\_\_\_  
(your gas mileage is dependent on a lot of factors, so think about how impossible it is to know to the penny how much you will end up spending!)

2. Harold's car has a fuel efficiency of 35 miles per gallon. Kumar's car has a fuel efficiency of 12 kilometers per liter. Who gets better gas mileage, Harold or Kumar?

3. A unit of length called the “furlong” is used in horse racing. The units of length called the “chain” and the “link” are used in surveying. There are 8 furlongs in 1 mile (mi), 10 chains in 1 furlong, and 100 links in 1 chain. To three significant figures, what is the length of 1 link in inches?