Questions

1. Find the constant of variation and construct the function that is expressed by the statement:

If A varies jointly as L and W, and $A = 30$ when $L = 3$ and $W = 5\sqrt{2}$, what is the value of A when $L = 2\sqrt{3}$ and $W = 1/2$?

2. The gear ratio for a bicycle varies jointly with the number of teeth on the chainring n, by the pedals, and the distance to the wheel w (in inches), and inversely with the number of teeth on the cog c, by the wheel (www.harriscyclery.com). Find the missing entries in the following table.

n	w	c	r
50	27	25	54
40	26	13	
45	27		67.5

3. The pressure exerted by water at a point below the surface varies directly with the depth. The pressure is 4.34 lb/in^2 at a depth of 10 ft. What pressure does the sperm whale experience when it dives 6000 ft below the surface?

4. Evaluate the following limits by thinking of what the sketch of the function looks like.

(a) $\lim\limits_{x \to \infty} x^4 =$

(b) $\lim\limits_{x \to \infty} x^3 =$

(c) $\lim\limits_{x \to \infty} x^{1/2} =$

(d) $\lim\limits_{x \to -\infty} x^{1/3} =$