More Work with Maple
This Will Be OK

1. Find the anti-derivative of x^2. Verify that this is indeed an anti-derivative by differentiating the anti-derivative.

2. Find the anti-derivative of $\sin^3(x)$. Verify that this is indeed an anti-derivative by differentiating the anti-derivative.

3. The rate at which a tree grows is given by

$$r(t) = 2te^{-\frac{t}{7}} , \tag{1}$$

   where $f(t)$ has units of feet per year, and t is measured in years.

   (a) How tall is the tree after 10 years?

   (b) How tall is the tree after 30 years?

   (c) How tall would the tree be if it lived forever?

   (d) When is the tree growing the fastest?

   (e) Plot $r(t)$.

   (f) Plot $h(t)$, the height of the tree as a function of time.