```
/*******************************/
/* SAS Code for Power Analysis */
/*******************************/


proc power;
      onesamplemeans
            nullmean = 2
            mean = 5 10 15
            stddev = 30 50
            alpha = 0.05
            power = .
            sides = 1
            ntotal = 62;
      plot x=effect;
run;



/* About this code:

> POWER is one of the few PROCs that does not need a DATA step before it.

> The "onesamplemeans" statement requests power/sample size calculations based on a test
for a single mean. Other procedures we will see this semester include "twosamplemeans",
"pairedmeans", "onewayanova", "onesamplefreq", "twosamplefreq"; information on syntax for
each of these can be found at
support.sas.com/documentation/cdl/en/statug/63033/HTML/default/viewer.htm#statug_power_se
ct001.htm.

> "null mean = " option specifies the null value of the test (default = 0).
> "mean = " specifies a best guess for value of the mean if Ha were true.
> "stdev = " specifies a best guess for the value of the standard deviation.
> "alpha = " specifies the significance level the test will be conducted at (default =
0.05).
> "power = " specifies the desired power level; leave blank ("power = .") if you want SAS
to calculate the power.
> "sides = 1" corresponds to a 1-sided test (defaults to a 2-sided test, "sides = 2").
> "ntotal = " specifies the sample size that will be used; leave blank ("ntotal = .") if
you want SAS to calculate the smallest sample size needed to achieve desired power under
the other conditions specified.
>> Note: the options that come after the "onesamplemeans" statement can be listed in any
order.
>> Note: You can enter multiple values for each of these options to consider several
possibly scenarios (e.g. What if mean under alternative is 5? 10? 15? What if the true
standard deviation is 30? 50?);

> The "plot" statement requests that SAS produce a power curve;
> "x=effect" plots power achieved (y-axis) vs. various possible values of the mean under
Ha (x-axis; must specify at least 2 values in the "mean = " option to get a curve);
> "x=n" plots power achieved (y-axis) vs. various possible values of the sample size (x-
axis; must specify at least 2 values in the "ntotal = " option to get a curve);
> For more information on the options for the "plot" statement see
support.sas.com/documentation/cdl/en/statug/63033/HTML/default/viewer.htm#statug_power_se
ct011.htm.

>> The note outline on Hypothesis Testing shows specific examples of SAS code (with
output) for: (1) calculating sample size and (2) calculating power.
>> The solutions to the recommended practice problems (from the textbook) show examples
of SAS code (with output) for producing various power curves.
*/
```