

Karl Task 3

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```
power<-0.9
alpha<-0.05
R2<-0.1

#Effect size, strength of relationship between variables
effect_size<-R2/(1-R2)

#Degrees of freedom = Number of predictor variables.
#Note when looking at predictors with multiple levels, the reference level
#is not counted.
num_pred<-5

pwr.f2.test(u=num_pred, f2=effect_size, sig.level=alpha, power=power)

##
##      Multiple regression power calculation
##
##              u = 5
##              v = 147.8645
##              f2 = 0.1111111
##      sig.level = 0.05
##              power = 0.9

#Note: the output, v, is the denominator degrees of freedom rather than sample
#size, so we need to add on the total number of variables (num_pred+1)

sample_size<-round(147.8645)+num_pred+1

sample_size

## [1] 154
```