

## Part 1.2-2

In this case, we need to figure out when  $8 * n^2 \leq 64 * n * \lg n$ .

By plotting it in Matlab, we have the Figure 1:

The Matlab code we used is the following:

```
x = linspace(0,10);  
y1 = 8 * x.^2;  
y2 = 64 * x .* log10(x);  
figure();  
plot(x,y1,x,y2);  
legend('8*n^2','64*n*lg n');
```

As we see the period that  $8 * n^2$  is faster than  $64 * n * \lg n$  is between 1 and 6. This is easy to calculate from seeing the plot and a little bit of trial and error in the edges. **Keep in mind, that since we are talking about inputs, we are only interested in integers.**

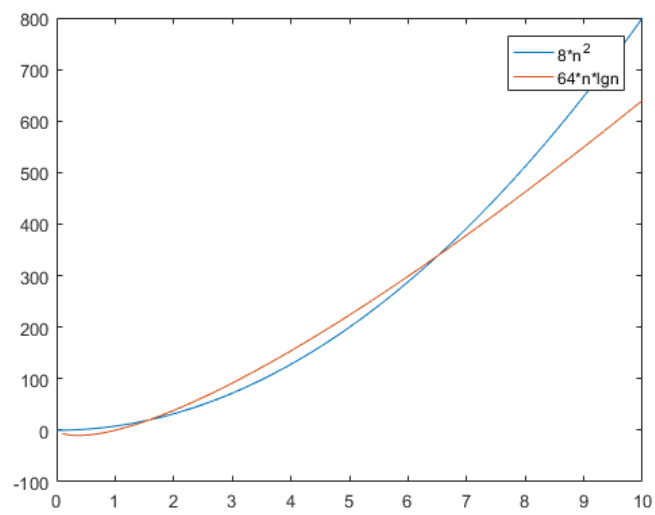


Figure 1: Our plot