

## The Product Rule

Integration by parts is a very handy and useful technique for integrating in Math 230 and beyond. The basic formula is:

$$\int u dv = vu - \int v du$$

The problem is always deciding how to choose which function to be your  $u$  and which function to be your  $dv$ . There are a few rules that can aide you in your quest to integrate.

**1.**

Choose your  $dv$  such that it is actually integrable, that is so that  $v$  actually exists.

**2.**

It is a good sign if  $du$  is simpler, or at least not as complicated as  $u$ .

**3.**

It is a good sign if  $v$  is simpler, or at least not as complicated as  $dv$ .