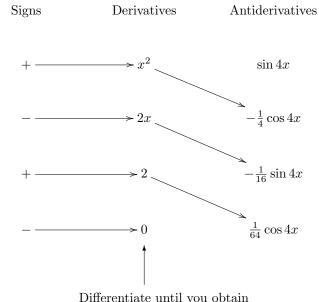
Ex: 
$$\int x^2 \sin 4x \, dx$$

Ex:  $\int x^2 \sin 4x \, dx$ Let  $u = x^2$  and  $dv = v' \, dx = \sin 4x \, dx$ . Create a table consisting of three columns, as follows.

 $\boldsymbol{u}$  and Its

Alternative



 $v^{\prime}$  and Its

Differentiate until you obtain 0 as a derivative.

The solution is obtained by adding the *signed* products of the diagonal entries:

$$\int x^2 \sin 4x \, dx = -\frac{1}{4}x^2 \cos 4x + \frac{1}{8}x \sin 4x + \frac{1}{32}\cos 4x + C.$$