

1. Let  $C$  be the line segment from  $(0,1)$  to  $(2,3)$ , find  $\int_C xy \, ds$

$$r(t) = (1-t)\langle 0,1 \rangle + t\langle 2,3 \rangle$$
$$\langle 2t, 1+2t \rangle$$

$$x = 2t, \quad y = 1+2t \text{ for } t = 0..1$$

Plug in values for  $x$  and

$$14\sqrt{2}/3$$

2. Evaluate

Plug in all given values for  $x$  and  $y$

$$(t^2)(t^6)(2t) + (t^4)(t^3)(3t^2)$$

Take the integral for the given bounds