

## Lecture 18 Quiz

1.  $(0,1)$  to  $(2,3)$

$$(1-t) \cdot (0,1) + t(2,3)$$

$$\langle 0, 1-t \rangle + \langle 2t, 3t \rangle$$

$$= \langle 2t, 2t \rangle$$

$$x=2t, \quad y=2t$$

$$r'(t) = \langle 2, 2 \rangle$$

$$|r'(t)| = \sqrt{8}$$

$$\int_C f \, ds = \int_0^1 ((2t)^2 + (2t)^2) \cdot \sqrt{8} \, dt$$

2.  $\int_C xy^2 dx + x^2 y dy$

$$x: t^2 \quad y: t^3$$

$$\int_C P(x,y,z) dx +$$

$$dx = x'(t) \cdot dt$$

$$dy = y'(t) \cdot dt$$

$$dz = z'(t) \cdot dt$$

$$\int_0^1 (t^2)(t^3)^2 \cdot 2t \, dt + (t^2)^2(t^3) \cdot 3t^2 \, dt$$

$$= \int_0^1 t^2 \cdot t^6 \cdot 2t \, dt + t^4 \cdot t^3 \cdot 3t^2 \, dt$$

$$\int_0^1 2t^{12} \, dt + 3t^9 \, dt$$