

6) Find $F'(x)$

$$F(x) = \int_1^{x^2} \frac{1}{t} dt = \frac{1}{x^2} \cdot 2x = \frac{2}{x}$$

7) Find area bounded by region.

2 $y = \frac{x+4}{x}, x=1, x=4, y=0$

$$\int_1^4 \frac{x+4}{x} dx = \int_1^4 \left(1 + 4 \cdot \frac{1}{x}\right) dx$$

$$= x + 4 \ln|x| \Big|_1^4$$

$$(4 + 4 \ln 4) - (1 + \cancel{4 \ln 1})$$

$$3 + 4 \ln 4$$

or

$$3 + 4 \ln 2^2 = 3 + 8 \ln 2$$