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Find
$$f'(x)$$
 for $f(x) = \frac{k}{x}$

1) First rewrite to show the negative exponent: $f(x) = k \cdot x^{-1}$

2) Apply the derivative:
$$f'(x) = \frac{d}{dx} k \cdot x^{-1}$$

3) Place the k outside the derivative symbols because it's constant:

$$f'(x) = k \cdot \frac{d}{dx} x^{-1}$$

4) Bring the -1 down, and subtract 1 from the exponent:

$$f'(x) = k(-1) \cdot x^{-1-1}$$

5) Complete the subtrcation in the exponent:

$$\mathbf{f}'(\mathbf{x}) = \mathbf{k} \cdot (-1) \cdot \mathbf{x}^{-2}$$

6) Multiply the k by the -1 to get -k.

$$f'(x) = -k \cdot x^{-2}$$

7) Rewrite using the definition of negative exponents: $f'(x) = \frac{-k}{x^2}$