Name:_____

Find $\int_2^7 \frac{3\ dx}{(2x+6)^2}$

$u = 2x+6$

$du = 2\,dx$

$\frac{du}{2} = dx$

$x = 2 \rightarrow u = 10$

$x = 7 \rightarrow u = 20$

$$= \frac{3}{2}\int_{10}^{20} \frac{du}{u^2}$$

$$= \frac{3}{2}\int_{10}^{20} u^{-2}\,du$$

$$= \frac{3}{2}\left(-u^{-1}\right)\Big|_{10}^{20}$$

$$= \frac{3}{2}\left(-\frac{1}{20} + \frac{1}{10}\right)$$

$$= \frac{3}{40} \text{ or } 0.075$$