# Answer on Question \#53832 - Math - Calculus <br> Question 

Find the derivative of $f(x)=$ negative 7 divided by $x$ at $x=-3$.

## Solution

$$
\begin{equation*}
f(x)=-\frac{7}{x} \tag{1}
\end{equation*}
$$

$f^{\prime}(x)=\left(-\frac{7}{x}\right)^{\prime}=-7\left(\frac{1}{x}\right)^{\prime}=-7\left(x^{-1}\right)^{\prime}=-7\left(-x^{-2}\right)=-7 \cdot\left(-\frac{1}{x^{2}}\right)=\frac{7}{x^{2}}$
Property of derivative

$$
(a f(x))^{\prime}=a(f(x))^{\prime}
$$

and well-known formula from the table of derivatives

$$
\begin{equation*}
\left(x^{n}\right)^{\prime}=n x^{n-1} \tag{2}
\end{equation*}
$$

were applied in (1).
In this problem we put $n=-1$ in (2).
Thus, it follows from (1) that

$$
f^{\prime}(-3)=\left.\left(\frac{7}{x^{2}}\right)\right|_{x=-3}=\frac{7}{(-3)^{2}}=\frac{7}{9}
$$

Answer: $f^{\prime}(-3)=\frac{7}{9}$.

