Sample Questions 01

Consider the following probability density function (pdf) over the support $(0, 1)$:

$$f(x) = \begin{cases} 4x^3 & \text{if } 0 < x < 1 \\ 0 & \text{otherwise} \end{cases}$$

Write a function called `rf`, that generates i.i.d observations from this pdf. It should take in exactly one argument, n, that determines how many random variates to return. For instance:

```
set.seed(33)
rf(n = 5)
```

```
## [1] 0.8171828 0.7925983 0.8339701 0.9790711 0.9584520
```

Now generate 10,000 random variates from this pdf and store them in a vector named X.

Your script must generate a function named `rf` and a vector named X.