True/False - No explanation needed. (For each: 1 point if correct, 0 points if not answered, -1 points if incorrect)

1. The PDF $f(x) = \frac{1}{3x^{4/3}}$ for $1 \leq x \leq \infty$ and $f(x) = 0$ otherwise, has finite median but infinite mean. True/False

2. Shifting the bell-shaped PDF $f(x) = \frac{1}{\sqrt{2\pi}}e^{-\frac{x^2}{2}}$ to the right by 2 units results in another PDF $g(x) = \frac{1}{\sqrt{2\pi}}e^{-\frac{(x-2)^2}{2}}$ centered at 2. True/False

Problems - Needs justification.

1. Assume that the PDF of x is
$$f(x) = \sqrt{\frac{2}{\pi}}e^{-x^2/2}$$
for $0 \leq x \leq \infty$ and 0 otherwise. What is the mean of this random variable? (10 points)