True/False - No explanation needed. (1pt for correct, 0pt - no answer, -1pt - incorrect)

1. If the standard deviation exists, the mean exists. True/False

2. If a RV X is translated by 2, i.e. $X + 2$, its standard deviation is also translated by 2. True/False

Problems - Need justification. No justification means **zero**!

1. (10pts) Given a RV X having the PDF $f(x) = cx(1 - x)$ for $0 \leq x \leq 2$ and $f(x) = 0$ otherwise. Find the variance of X (in term of c).