

HW #7

Please, write clearly and justify all your steps, to get proper credit for your work.

(1)[4 Pts] let X be a continuous r.v. with pdf $f(x) = 3(1 - x)^2$, $0 \leq x \leq 1$.

- (a) Graph the pdf;
- (a) find the mean of X ;
- (c) compute $P(0.1 < X < 0.5)$;
- (d) compute $P(X > 0.4)$.

(2)[4 Pts] Let Z be a standard normal random variable and calculate the following probabilities, drawing pictures wherever appropriate

- (a) $P(Z \leq 1)$;
- (a) $P(|Z| \leq 2.5)$;
- (c) $P(1.37 < Z)$;
- (d) $P(-1.5 < Z < 2)$.

(3)[4 Pts] Determine the value of the constant c that makes the probability statement correct.

- (a) $P(0 \leq Z \leq c) = 0.291$;
- (a) $P(|Z| \leq c) = 0.668$;
- (c) $P(c < Z) = 0.121$;
- (d) $P(Z < c) = 0.9838$.

