

25. In each of the following, find the PDF of  $Y$  and show that it integrates to one.

(a)  $Y = X^3$  and  $f_X(x) = 42x^5(1-x)$ ,  $0 < x < 1$ .

(b)  $Y = 4X + 3$  and  $f_X(x) = 7e^{-7x}$ ,  $0 < x < \infty$ .

(c)  $Y = X^2$  and  $f_X(x) = 30x^2(1-x)^2$ ,  $0 < x < 1$ .