

4. (2 points each) Circle “TRUE” or “FALSE” for each of the following problems. Circle “TRUE” only if the statement is *always* true. No explanation is necessary.

(a) The sum of the finite geometric series  $\sum_{n=0}^{81} ax^n = a + ax + ax^2 + \cdots + ax^{81}$  is  $\frac{a(1-x^{81})}{1-x}$  provided that  $x \neq 1$ .

TRUE

 FALSE

(b) Let  $F(x)$  be the cumulative distribution function of the heights of grass plants in a meadow, measured in meters. The statement  $F(0.5) = 0.25$  means that 25% of the grass plants in the meadow have a height of at most 0.5 meters.

 TRUE

FALSE

(c) Let  $f(x)$  be the probability density function of the heights of grass plants in a meadow, measured in meters. The statement  $f(0.5) = 0.7$  means that 70% of the grass plants in the meadow have height very close to 0.5 meters.

TRUE

 FALSE

(d) Let a quantity have density function  $p(x)$ , where the graph of  $p(x)$  is shown in the figure. The median of the quantity is positive.

 TRUE

FALSE

