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6. The continuous random variable X has probability density function

$$f(x) = \begin{cases} \frac{1+x}{k}, & 1 \leq x \leq 4, \\ 0, & \text{otherwise.} \end{cases}$$

- (a) Show that $k = \frac{21}{2}$. (3)
- (b) Specify fully the cumulative distribution function of X . (5)
- (c) Calculate $E(X)$. (3)
- (d) Find the value of the median. (3)
- (e) Write down the mode. (1)
- (f) Explain why the distribution is negatively skewed. (1)



