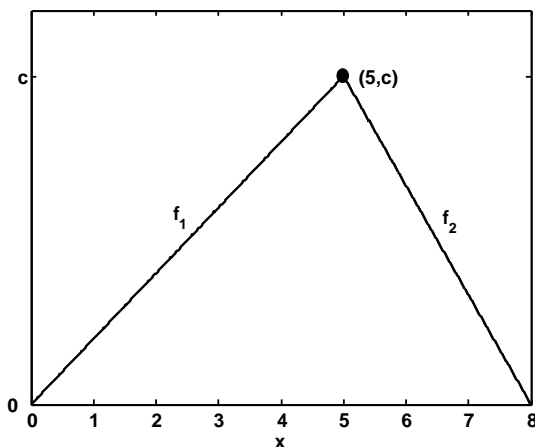


6. [9 points] Camp Summerama is a summer camp for teenagers. The camp is open for eight weeks every summer, and campers are able to attend for any length of time desired, between 0 to 8 weeks. The function $p(x)$ is the probability density function that the campers will enroll for x number of weeks. It is a piecewise function, defined by

$$p(x) = \begin{cases} \frac{c}{5}x & 0 \leq x \leq 5 \\ -\frac{c}{3}x + \frac{8c}{3} & 5 < x \leq 8 \end{cases}$$

and shown in the graph below.



- a. [2 points] What is the value of c ?

- b. [3 points] Evaluate $p(7)$. Interpret your answer in a complete sentence, using the context of campers and weeks spent at camp.

- c. [4 points] Determine the median value for this density function. Interpret your answer in a complete sentence, using the context of campers and weeks spent at camp.
Half of the campers spend less than 4.472 weeks at camp, and half spend more than 4.472 weeks at camp.