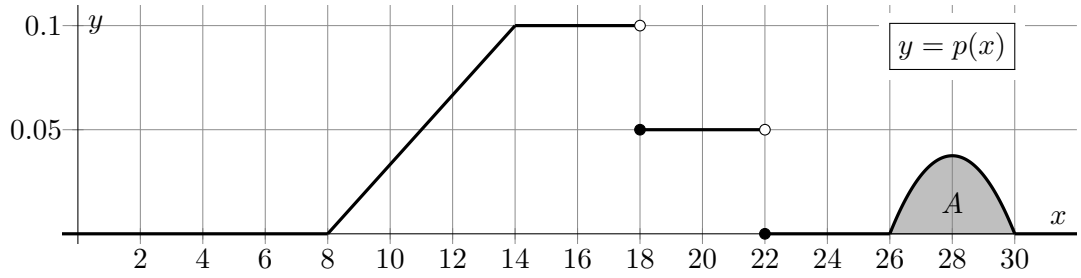
1. [9 points] Every Saturday during the summer, Dominic rides his bicycle in a national park. The distance he travels on his bicycle each Saturday varies.
Let $p(x)$ be the **probability density function** (pdf) for x, the distance (in miles) that Dominic bicycles on a Saturday. The graph of $p(x)$, shown below, has the following properties:

- $p(x)$ is piecewise linear for $x \leq 26$.
- $p(x)$ is nonzero only for $8 < x < 22$ and $26 < x < 30$.
- The area of the shaded region is A.



For each part of this problem, your answer should not involve the letter A. You do not need to show your work in this problem, but partial credit may be awarded for work shown clearly.

a. [1 point] Find the **minimum** distance that Dominic bicycles on a Saturday.

Answer: _____ miles

b. [2 points] Find the **median** distance that Dominic bicycles on a Saturday.

Answer: _____ miles

c. [2 points] Use the fact that $p(x)$ is a probability density function to find the value of A.

Answer: $A =$ _____

d. [2 points] Calculate the probability that Dominic bicycles farther than 18 miles on a Saturday.

Answer: _____

e. [2 points] Complete the sentence below to write a practical interpretation of the equation $p(28) = 0.0375$:

The probability that Dominic bicycles between 27 and 29 miles on a Saturday is...