3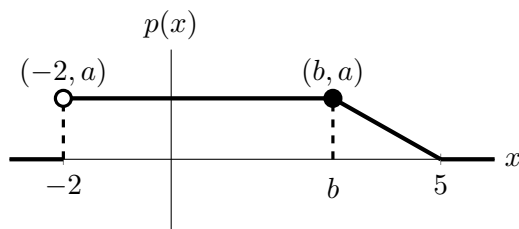. [8 points] Anya is playing a game. Each turn, Anya's score can change by x points, where x is a real number between -2 and 5. That is, her score can go up by as much as 5 points or down by as much as 2 points. The probability density function for the change in her score each turn is given by the piecewise-linear function $p(x)$ graphed below:

Here, a and b are positive constants. Do not assume the graph shown is to scale.

  a. [6 points] The median amount of points Anya can score each turn is $b - 1$. Find the values of a and b.

Answer: $a =$ _____ $b =$ _____

  b. [2 points] Circle the <u>one</u> statement best supported by the equation

$$p(4.6) = 0.0225.$$

  i) Anya will score between 4.5 and 4.7 points on about 0.45% of her turns.
  ii) Anya will score 4.6 points on 2.25% of her turns.
  iii) Anya will score 4.6 points on about 2.25% of her turns.
  iv) Anya will score at most 4.6 points on about 2.25% of her turns.
  v) Anya will score between 4.6 and 4.65 points on about 2.25% of her turns.
  vi) Anya will score 0.0225 points on about 4.6% of her turns.
  vii) Anya will score between 0 and 0.0225 points on about 0.1035% of her turns.