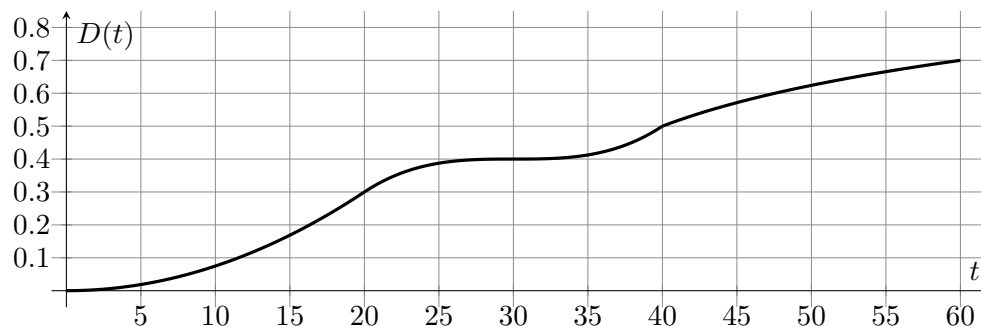


4. [9 points] A local basketball team measures their performance using different statistics.

- a. [6 points] Dusty the basketball coach keeps track of t , the number of seconds into a game that his team scores their first basket. The **cumulative distribution function** (cdf), $D(t)$, for this quantity is defined for all real numbers. A **portion of the graph** for $D(t)$ is shown below.



For each of the following parts, find the exact value of the given quantity, or **if there is not enough information** to determine the quantity, write “NEI”. No justification is required.

- (i) $D(-2)$

Answer: 0

- (ii) The probability that the team’s first basket is scored within the first 20 seconds of the game

Answer: 0.3

- (iii) The probability that it takes the team more than 60 seconds to score their first basket

Answer: 0.3

- (iv) The probability that it takes the team between 30 and 40 seconds to score their first basket

Answer: 0.1

- (v) The median number of seconds until the team scores their first basket

Answer: 40

- (vi) The mean number of seconds until the team scores their first basket

Answer: NEI

- b. [3 points] One of the players, Yaxel, tracks the number of minutes m that he spends on the court in each game. The **probability density function** (pdf) for this quantity is $Y(m)$. Complete the following sentence to give a practical interpretation of the equation $Y(30) = 0.14$.

The probability that Yaxel spends between 29 and 31 minutes on the court is ...

Solution: ...about 28%