EXAM P QUESTIONS OF THE WEEK

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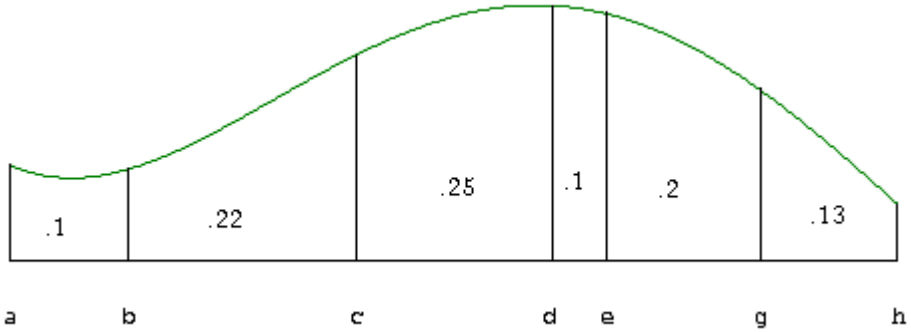
Week of September 10/07

The graph below is the pdf of a continuous random variable X on the interval $[a, h]$.
The numerical values represent areas for the subintervals.
Find the conditional probability $P[b < X < e \mid (c < X < g) \cap (X < d)]$.



The solution can be found below.

Week of September 10/07 - Solution

The region $(c < X < g) \cap (X < d)$ is $c < X < d$, so the probability is

$$P[b < X < e \mid c < X < d] = \frac{P[(b<X<e) \cap (c<X<d)]}{P[c<X<d]} .$$

The region $(b < X < e) \cap (c < X < d)$ is $c < X < d$, so

$$P[b < X < e \mid c < X < d] = \frac{P[c<X<d]}{P[c<X<d]} = 1 .$$