S 6 CLASS TEST FOR 4th JULY 2018 TIME: 20 MINUTES

1. James can go to his village home by either special hire(H) or while driving his car(D). The probability that he drives his car is 0.82. The probability that he drives his car and he is delayed is x. The probability that he will be delayed when he moves by special hire is 0.9.

   (a) Draw a probability tree diagram to illustrate this information.

   (b) The probability that he is delayed on a chosen day is 0.285. Find the value of x.

   and hence given that he is not delayed, what is the probability that he drives his car.

2. Given the random variable X such that $X \ (300 , 36)$, find the interquartile range.

3. Prove that if $\log_e \left(x^2 + y^2\right) = \tan^{-1}\left(\frac{y}{x}\right)$, then $\frac{d\,y}{d\,x} = \frac{2x+y}{x-2y}$.

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