The probability that Blessing goes for work using a taxi is $\frac{2}{3}$ and her probability of arriving early for work when she use a taxi is $\frac{3}{4}$. If she u a private means her chance of arriving late is $\frac{1}{3}$.

a) What is the probability that she arrives early for work on

b) If she arrives early, what is the probability that she

1. A and B are two events for which $P(A) = \frac{2}{3}$, $P(B'/A) = \frac{3}{4}$ and $P(B/A') = \frac{1}{3}$

find: (i) $P(B)$ (ii) $P(A/B')$

2. A car approaching a town covers two successive half-kilometers in 16 and 20 seconds respectively. Assuming the retardation is uniform. Find the further distance the car runs before stopping.

3. A particle of mass 10kg slides from rest down a slope of inclination 30°. The coefficient of friction is 0.5. Given that the length of the slope is 5m. show that the velocity of the particle at the bottom of the slope is $\sqrt{20}ms^{-1}$.

4. A string with one end fixed, passes under a moveable pulley of mass 2kg over a fixed pulley and carries a 5kg mass at its other end. If the system is released from rest, find the

(a) tension in the string

(b) acceleration of the movable pulley.

5. The probability that Blessing goes for work using a taxi is $\frac{2}{3}$ and her probability of arriving early for work when she use a taxi is $\frac{3}{4}$. If she use a private means her chance of arriving late is $\frac{1}{3}$.

a) What is the probability that she arrives early for work on a given d

b) If she arrives early, what is the probability that she used a private mea

6. A discrete random variable X has the probability mass function given

$$P(X = x) \begin{cases} \frac{k}{x^2}\ ; x = 1, 2, 3, 4 \\ 0\ ; otherwise \end{cases}$$

find the

(a) value of K

(b) $P(X \leq x)$ hence determine $F(3)$

7. Block A of mass 3kg rests on a rough horizontal table of coefficient o friction 0.125 another block B of mass 10kg which hangs freely in air 2.5m the ground is connected to the 3kg block by a light inextensible string which over a smooth fixed pulley at the edge of the table. when the system is re from rest. determine the,

(a) Acceleration of each block

(b) Tension in the string.