Let's calculate probability of being late at first and second routes.

Probability of being late at first route:

$$P_1 = 1 - 0.9^4 - 4 \cdot 0.1 \cdot 0.9^3 = 0.0523$$

Probability of being late at second route:

$$P_2 = 1 - 0.9^2 = 0.19$$

So, it is better to choose the first route.

b)

$$P(first\ route|late) = (using\ Bayers\ formula) = \frac{P(late|first\ route)P(first\ route)}{P(late)}$$

$$= \frac{0.0523 \cdot \frac{1}{2}}{\frac{1}{2} \cdot 0.0523 + \frac{1}{2} \cdot 0.19} = \frac{523}{2423}$$