AI1110
Assignment 10

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Outline

Exercise 13.1.9

Mother,father and son line up at random for a family picture.
E:son on one end,
F:father in middle.
Compute P(E/F).

Solution

Given events,

E : son on one end

F : father in middle

We denote mother,father and son with M,F and S respectively.

We have,

$$\text{Total number of arrangements possible} = 3! \tag{1}$$
$$= 6 \tag{2}$$

P(E∩ F)

$$M\text{—-}F\text{—-}S$$
$$S\text{—}F\text{—-}M$$

no.of favourable outcomes = 2
$$\therefore P(E \cap F) = \frac{2}{6} = \frac{1}{3}$$

P(F)

Favourable outcomes are same as in P(E∩F)

$\therefore P(F) = \dfrac{1}{3}$

Answer

$$P(E/F) = \frac{P(E \cap F)}{P(F)} \tag{3}$$

$$= \frac{(1/3)}{(1/3)} \tag{4}$$

$$= 1 \tag{5}$$