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$$P(\text{Exactly 4 red tickets}) = \binom{10}{4}\left(\frac{20}{50}\right)^4$$

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$$P(\text{Exactly 4 red tickets}) = \binom{10}{4}\left(\frac{20}{50}\right)^4\left(\frac{30}{50}\right)^6$$

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$$P(\text{Exactly 4 red tickets}) = \binom{10}{4}\left(\frac{20}{50}\right)^4\left(\frac{30}{50}\right)^6 = 210\frac{2^4 3^6}{5^{10}}$$