Quiz Questions: Probability

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1. A number is selected from the first 30 positive integers. What is the probability that it would be divisible by 2 or 5?
   A. $\frac{1}{10}$
   B. $\frac{11}{15}$
   C. $\frac{3}{5}$
   D. $\frac{7}{10}$

2. What is the probability that when two dice are rolled, the minimum of the numbers on the two dice is not 3?
   A. $\frac{1}{6}$
   B. $\frac{5}{6}$
   C. $\frac{29}{36}$
   D. $\frac{7}{36}$

3. What is the probability that when two dice are rolled, the minimum of the numbers on the two dice is not 3?
   A. $P(F) = \frac{3}{5}$
   B. $P(F) = \frac{3}{10}$
   C. $P(F) = \frac{1}{2}$
   D. $E \cap F = \emptyset$

4. For a Bernoulli trial with p = 1/4, the probability of having 1 failure in 3 trials is
   A. $\frac{3}{64}$
   B. $\frac{27}{64}$
   C. $\frac{1}{64}$
   D. $\frac{9}{64}$

5. Which of the following is correct?
   A. $P(F|E)P(E) = P(E|F)P(F)$
   B. $P(F|E)P(F) = P(E|F)P(E)$
   C. $P(F|E)P(F) = P(E \cap F)$
   D. $P(E) = P(F|E)P(E) + P(F|\bar{E})P(\bar{E})$

6. When rolling two dice, and event E = "the maximum of dice is 5" and event F = "rolled at least one 3", what is $P(E|F)$?
   A. $\frac{1}{18}$
   B. $\frac{2}{11}$
   C. $\frac{11}{36}$
   D. $\frac{9}{36}$

7. Suppose that E and F are events and $P(E) = \frac{2}{3}$, $P(F) = \frac{3}{4}$, and $P(F|E) = \frac{7}{8}$. Find $P(E|F)$.
   A. $\frac{4}{9}$

B. $\frac{2}{3}$
C. $\frac{5}{9}$
D. $\frac{7}{9}$

8. When the probability of having a disease is 4% and a test has a false positive rate of 12.5% in 1000 tests there will be:
   A. 50 false positive
   B. 120 false positive
   C. 125 false positive
   D. 96 false positive

Answers:

1. C
2. C
3. A
4. D
5. A
6. B
7. D
8. B