Name _____ Solutions _____

Finite Mathematics (Math 10120), Fall 2020
Quiz 3, Friday, September 18, 2020

Suppose you randomly select a card from a standard 52 card deck. Consider the events

$$E = \text{the card is an J, Q or K,}$$
$$F = \text{the card is \textbf{not} a diamond.}$$

1. Compute $P(E \cup F)$.

Note $P(E) = \dfrac{12}{52}$ (J, Q, K of each suit)

$P(F) = \dfrac{39}{52}$ (all the clubs, hearts, spades)

$P(E \cap F) = \dfrac{9}{52}$ (J, Q, K of clubs, hearts, spades)

So $P(E \cup F) = P(E) + P(F) - P(E \cap F)$

$$= \frac{12 + 39 - 9}{52} = \frac{42}{52} = \frac{21}{26}$$

Answer to #1:

$\dfrac{21}{26}$

2. Compute $P(E \mid F)$.

$$P(E \mid F) = \frac{P(E \cap F)}{P(F)} = \frac{9/52}{39/52} = \frac{9}{39} = \frac{3}{13}$$

Answer to #2:

$\dfrac{3}{13}$