∴ $P(X=t)$ is independent from $P(Y=t)$ because

$$P(X=t) = \frac{13}{52} = \frac{1}{4}$$

$$P(Y=t) = \frac{4}{52} = \frac{1}{13}$$

If independent,

$$P(X \cap Y) = P(X) \cdot P(Y)$$

$$\frac{1}{52} = \frac{1}{4} \cdot \frac{1}{13}$$ → so it proves they're equal so events are independent