Warm up:

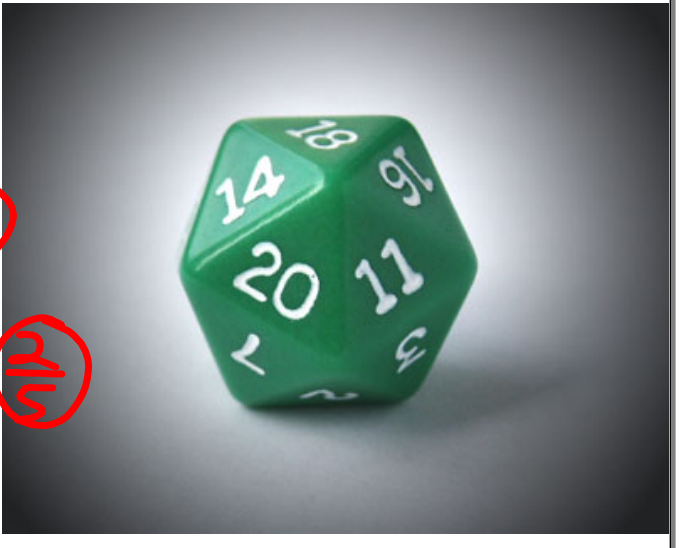
You roll a 20-sided die. Find the following probabilities

1) P(20) $= \frac{1}{20}$

2) P(not even) $= \frac{10}{20} = \frac{1}{2}$

3) P(greater than 12) $\frac{8}{20} = \frac{2}{5}$

4) P(4, 10, or 16) $\frac{3}{20}$



If you spin the spinner to the right twice, what the P(red, then green)?

$\frac{1}{4} \cdot \frac{1}{4} = \frac{1}{16}$

compound event: an event that consists of two or more simple events

For independent events...

$$P(A, \text{then } B) = P(A) \cdot P(B)$$

Ex: Rolling a die twice.
P(3, then 4)

$$\frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$$

HW Solutions

(10) $\frac{21}{70} = \frac{3}{10} = 30\%$

$0.3(540)$

$\frac{3}{10}(540)$

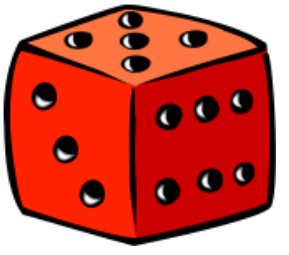
$\frac{21}{70} = \frac{x}{540}$

8 $\frac{11}{50} = \frac{x}{100}$

$\frac{11}{50}(100)$

$0.22(100)$

Rolling a die and picking a card...



1) P(3 and spade) =
2) P(odd and 10) =
3) P(1 or 4 and face card) =
4) P(greater than 2 and red) =
5) P(not 5 and not diamonds) =
6) P(2 and 6 of hearts) =

Picking a card, replacing it, and picking again...

7) P(Ace then King) =
8) P(Ace of spades twice) =
9) P(Diamond then red) =
10) P(two face cards) =

1) P(3 and spade) =

$$\frac{1}{6} \cdot \frac{\cancel{13}^{1}}{\cancel{52}_{4}} = \frac{1}{24}$$

2) P(odd and 10) =

$$\frac{1}{2}\cancel{\frac{3}{6}} \cdot \cancel{\frac{4}{52}}\,\frac{1}{13} = \frac{1}{26}$$

3) P(1 or 4 and face card) =

$$\frac{1}{3}\cdot\frac{12}{52}=\frac{1}{13}$$

4) P(greater than 2 and red) =

$\frac{2}{3} \cdot \frac{4}{6} \cdot \frac{26}{52} \cdot \frac{1}{2} = \frac{1}{3}$

5) P(not 5 and not diamonds) =

$$\frac{5}{6} \cdot \frac{39}{52} = \frac{5}{8}$$

6) P(2 and 6 of hearts) =

$$\frac{1}{6} \cdot \frac{1}{52} = \frac{1}{312}$$

7) P(Ace then King) =

$$\frac{1}{13}\cdot\frac{4}{52}\cdot\frac{4}{52}\cdot\frac{1}{13}=\frac{1}{169}$$

8) P(Ace of spades twice) =

$$\frac{1}{52} \cdot \frac{1}{52} = \frac{1}{2704}$$

9) P(Diamond then red) =

$$\frac{1}{4}\cdot\frac{13}{52}\cdot\frac{26}{52}\cdot\frac{1}{2}=\frac{1}{8}$$

10) P(two face cards) =

$$\frac{3}{13}\cdot\frac{3}{13}=\frac{9}{169}$$

February 16, 2022