

Mathematics 11C

2.2 – Theoretical Probability

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Experimental Probability = successful trials / total trials

 experiment.

Theoretical Probability = successful outcomes / total outcomes

Jim flips a coin 10 times and he gets 7 heads.

$$P(\text{head}) = \frac{7}{10} = 70\%$$

$$P(\text{head}) = \frac{1}{2} = 50\%$$

Given a deck of cards, find the probability of drawing:

a) a heart $P(\text{heart}) = \frac{13}{52} = \frac{1}{4} = 0.25 = 25\%$

b) an ace $P(\text{ace}) = \frac{4}{52} = \frac{1}{13} = 0.076 \approx 8\%$

c) a 2 or a 10 $P(2 \text{ or } 10) = \frac{4 + 4}{52} = \frac{8}{52} = 0.15 = 15\%$

d) a face card
J, Q, K $P(\text{Face}) = \frac{12}{52} = \frac{3}{13} = 0.23 = 23\%$

e) a heart, club or a jack $P(H, C, J) = \frac{13 + 13 + 4}{52} = \frac{28}{52} = \frac{7}{13} = 54\%$

Two dice $\Rightarrow$ 36 outcomes

sum	# of ways
2	1
3	2
4	3
5	4
6	5
7	6
8	5
9	4
10	3
11	2
12	1

$$P(5) = \frac{4}{36}$$