

HW: Worksheet/1-15, 17, 20

**Warm up:**

You pick a card at random out of a standard deck of cards.

$$1) P(\text{Jack of spades or a 6}) = \frac{5}{52}$$

$$2) P(\text{Queen}) = \frac{4}{52} = \frac{1}{13}$$

$$3) P(\text{not a face card}) = \frac{40}{52} = \frac{10}{13}$$

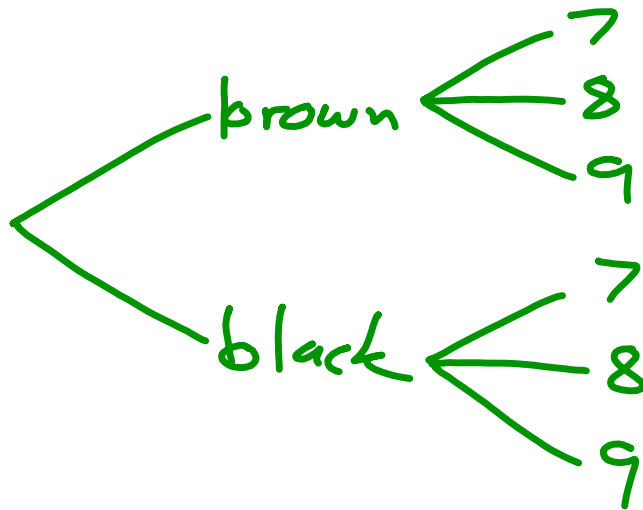
## What is a sample space?

the set of all possible outcomes in a probability experiment

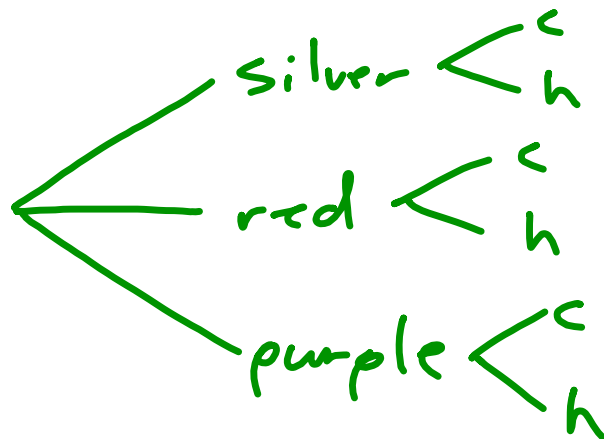
A store is selling brown and black sandals in sizes 7, 8, or 9. Find the sample space.

brown 7  
brown 8  
brown 9  
black 7  
black 8  
black 9

# Organized list vs. tree diagram



A car comes in 3 colors: silver, red, or purple and 2 tops: convertible or hardtop. Find all of the color-top combinations.



## Fundamental Counting Principle

If event M has m possible outcomes and event N has n possible outcomes, then event M followed by event N has  $m \times n$  possible outcomes.

ex: A coin is tossed and a number cube is rolled.

H1  
H2  
H3  
H4  
H5  
H6

1  
2  
3  
4  
5  
6

$$\underline{2} \cdot \underline{6} = \textcircled{12}$$

5 letter password

$$\underline{26} \cdot \underline{26} \cdot \underline{26} \cdot \underline{26} \cdot \underline{26}$$

11,881,376

The Jean Shop sells young men's jeans in different sizes, styles, and lengths. The store has waist sizes 30, 32, 34, 36, and 38. Lengths available are 30, 32, and 34. The jeans come in slim fit, boot cut, or loose fit. Find the probability of selecting a size 32 x 34 slim fit.

$$5 \cdot 3 \cdot 3 = 45$$

$$\frac{1}{45}$$

# HW Solutions



Find the total number of outcomes in each situation.

1) Rolling 2 dice and flipping a coin.

$$6 \cdot 6 \cdot 2 = 72$$

2) Making a sandwich with ham, turkey, or roast beef; swiss or provolone cheese; and mustard or mayonaise.

$$3 \cdot 2 \cdot 2 = 12$$

3) Choosing a 4 letter password using only vowels.

$$5 \cdot 5 \cdot 5 \cdot 5 = 625$$

4) Choosing a 6 character password using letters or numbers.

$$36 \cdot 36 \cdot 36 \cdot 36 \cdot 36 \cdot 36 = 2,176,782,336$$

5) A license plate with 4 letters and 2 digits.

$$26 \cdot 26 \cdot 26 \cdot 26 \cdot 10 \cdot 10$$

$$456,976,000$$

February 14, 2022

