



**Warm up Grade 8**

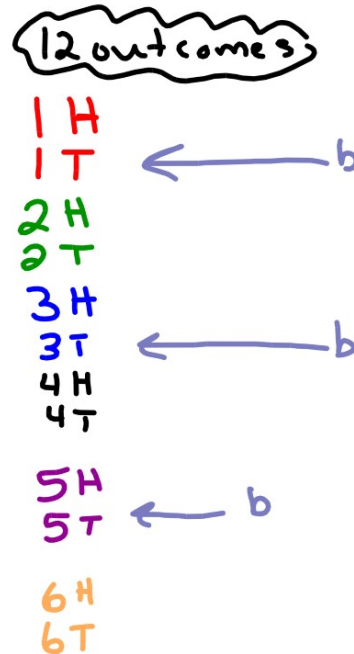
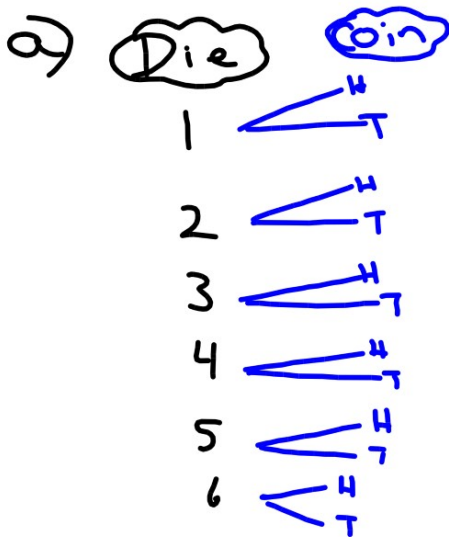
**March 23, 2026**



a) Use a tree diagram to find all the possibilities of rolling a die and flipping a coin.

$$\begin{aligned} \# \text{ outcomes} &= \# \text{ outcome} \times \# \text{ coin} \\ &= 6 \times 2 = 12 \end{aligned}$$

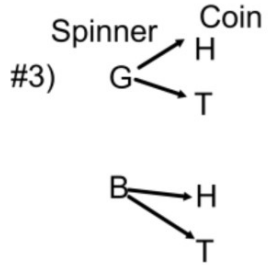
b) What is the probability of rolling an odd number and getting a tail's?



$$\begin{aligned} \text{b) } P(\text{odd \# and Tails}) &= \frac{\# \text{ odd with Tails}}{\text{Total}} \\ &= \frac{3}{12} \\ &= \frac{1}{4} \\ &= 0.25 \\ &= 25\% \end{aligned}$$

Homework Solutions

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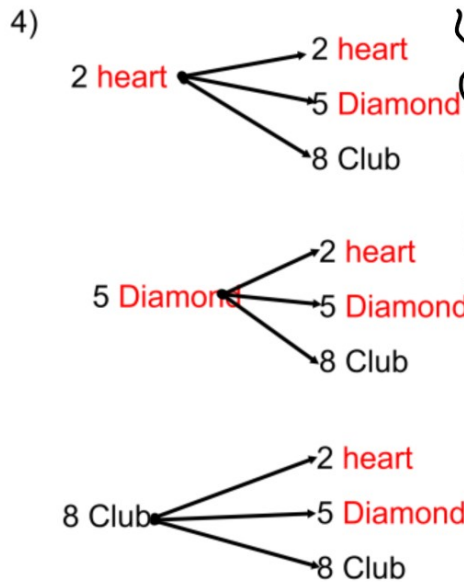


Possibilities

- GH
- GT
- BH
- BT

3a)  $P(\text{of Blue \& Heads}) = \frac{1}{4}$

3b)  $P(\text{of Blue or Green \& Heads}) = \frac{2}{4} = \frac{1}{2}$



possibilities

- 2♥ 2♥
- 2♥ 5♦
- 2♥ 8♣

a)  $P(\text{both red}) = \frac{4}{9} = 0.\overline{4} = 44\%$

- 5♦ 2♥
- 5♦ 5♦
- 5♦ 8♣

b)  $P(\text{first read \& second Black}) = \frac{2}{9} = 0.\overline{2} = 22\%$

- 8♣ 2♥
- 8♣ 5♦
- 8♣ 8♣

c)  $P(\text{both even}) = \frac{4}{9} = 0.\overline{4} = 44\%$

d)  $P(\text{Sum of Numbers greater than 8}) = \frac{6}{9} = \frac{2}{3} = 0.\overline{66} = 66\%$

5)



Possibilities

- 1 R
- 1 G
- 2 R
- 2 G
- 3 R
- 3 G
- 4 R
- 4 G
- 5 R
- 5 G

a)  $P(\text{green \& a 2}) = \frac{1}{10}$

b)  $P(\text{red \& an even \#}) = \frac{2}{10} = \frac{1}{5}$

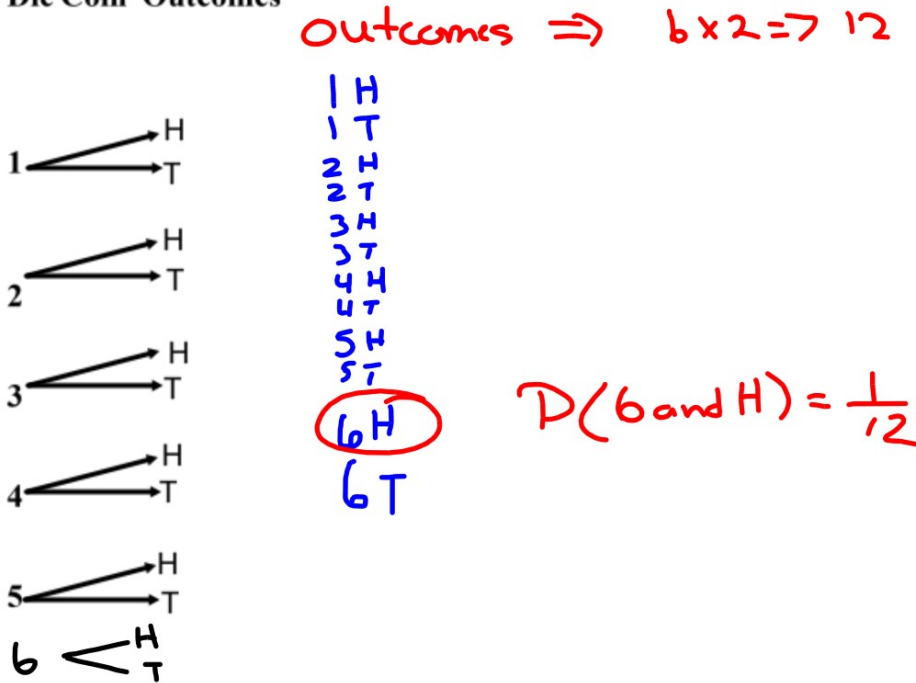
c)  $P(\text{green \& a prime \#}) = \frac{6}{10} = \frac{3}{5}$

Independent Events

Two events are Independent events when one event does not affect the other.

For example) the probability of rolling a 6 is  $\frac{1}{6}$ . The probability of flipping a head is  $\frac{1}{2}$ . What is the probability of rolling a 6 and flipping a head?

Die Coin Outcomes



Prob (6) =  $\frac{1}{6}$

Prob (H) =  $\frac{1}{2}$

It is often written as:  $P(A \text{ and } B) = P(A) \times P(B)$

So in the example above, the Prob(6 and Head) =  $P(6) \times P(H)$   
 =  $\frac{1}{6} \times \frac{1}{2}$   
 =  $\frac{1}{12}$

The rule for two independent events:

$$P(A \text{ and } B) = P(A) \times P(B)$$
$$= \frac{\text{top} \times \text{top}}{\text{Bottom} \times \text{Bottom}}$$

Reduce



2 outcomes

4 outcomes

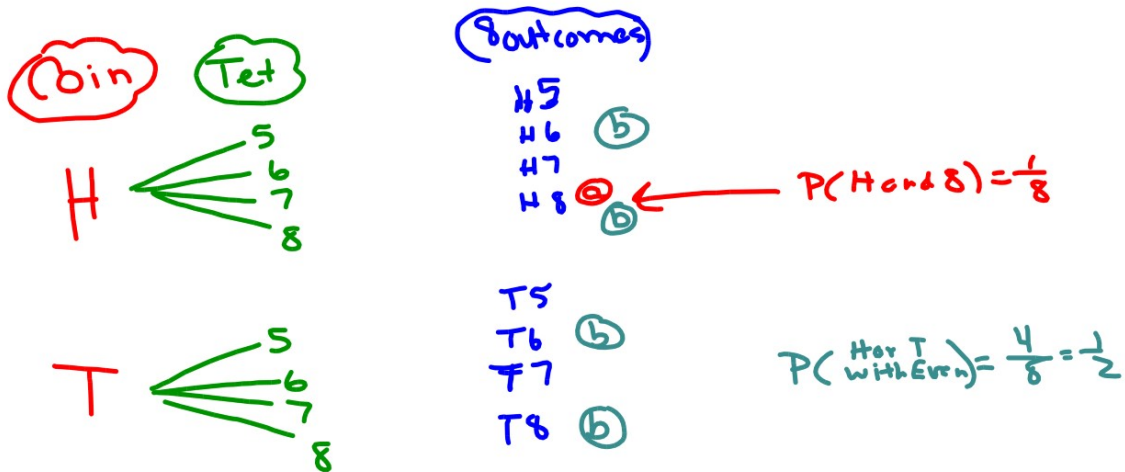
A coin is tossed and regular tetrahedron labelled 5, 6, 7, 8 is rolled.

- a) Find the probability of tossing heads and rolling an 8.
- b) Find the probability of tossing heads or tails and rolling an even number.

Use a tree diagram to verify your answers.

$$\begin{aligned}
 \text{a) } P(H \text{ and } 8) &= P(H) \times P(8) \\
 &= \frac{1}{2} \times \frac{1}{4} \\
 &= \frac{1}{8} \\
 &= 0.125 \\
 &= 12.5\%
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } P\left(\frac{H}{T} \text{ And Even\#}\right) &= P\left(\frac{H}{T}\right) \times P(\text{Even\#}) \\
 &= \frac{2}{2} \times \frac{2}{4} \\
 &\quad \downarrow \text{Reduce} \quad \downarrow \\
 &= \frac{1}{1} \times \frac{1}{2} \\
 &= \frac{1}{2} = 0.5 = 50\%
 \end{aligned}$$





$$\text{Total} = 12$$

A bag contains 3 orange marbles, 4 blue marbles and 5 green marbles.

1) Tim removes 1 marble without looking record the colour, then return the marble to the bag and flips a coin.

a) What is the probability the he picks a blue marble and flips a head?

$$\begin{aligned} P(\text{Blue Marble And Heads}) &= P(\text{Blue Marble}) \times P(H) \\ &= \frac{4}{12} \times \frac{1}{2} \\ &= \frac{1}{3} \times \frac{1}{2} \\ &= \frac{1}{6} \Rightarrow 0.1\bar{6} \\ &= 16\% \end{aligned}$$

b) If he were to pick two marbles and flip the coin once then what is the probability that he picks a green and blue marble and flips a tails?

$$\begin{aligned} P(G, B, \text{And Tails}) &= P(G) \times P(B) \times P(\text{Tails}) \\ &= \frac{5}{12} \times \frac{4}{12} \times \frac{1}{2} \\ &= \frac{5}{12} \times \frac{1}{3} \times \frac{1}{2} \\ &= \frac{5}{72} \Rightarrow 0.069 \\ &= 6.9\% \end{aligned}$$

2) Same bag of marbles but picks 3 marbles each time

a) What is the probability of picking 3 marbles and all are not orange?

$$\begin{aligned} P(\text{Not orange } 3 \text{ times}) &= P(\text{Not Orange}) \times P(\text{Not Orange}) \times P(\text{Not Orange}) \\ &= \frac{9}{12} \times \frac{9}{12} \times \frac{9}{12} \\ &= \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} \\ &= \frac{27}{64} \Rightarrow 0.42 = 42\% \end{aligned}$$

d) What is the probability of a green, black and orange?

$$\begin{aligned} P(\text{Green, Black and Orange}) &= P(G) \times P(\text{Black}) \times P(\text{Orange}) \\ &= \frac{5}{12} \times \frac{0}{12} \times \frac{3}{12} \\ &= 0 \\ &= 0\% \end{aligned}$$

# Class / Homework

5,

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$$P(A, B \text{ and } C) = P(A) \times P(B) \times P(C)$$

$$\frac{\#A}{\text{Total}} \times \frac{\#B}{\text{total}} \times \frac{\#C}{\text{Total}}$$

$$5a) P(\text{Green and } 2) = P(G) \times P(2)$$

$$= \text{---} \times \text{---}$$

c) Prime # 2, 3, 5, 7, 11, 13, 17, 19, 23, ...

$$7)a) P(\text{Bert and Beth}) = P(6) \times P(6)$$

$$\frac{1}{6} \times \frac{1}{6}$$

Use a table to determine the outcomes for rolling a die twice.

1. Find the probability of rolling a sum greater than 10.
2. Find the probability of rolling 2 even numbers.