

## Probability & Odds

Probability:  $\frac{\# \text{ of favorable outcomes}}{\text{total \# of outcomes}}$

Examples: You have a regular die. What is the probability that you...



① Roll a 6?  $\frac{1}{6}$

② Roll an even number?  $= \frac{3}{6} = \frac{1}{2}$

③ Roll a 0?  $\frac{0}{6} = 0$

④ Roll a number greater than 4?  $\frac{2}{6} = \frac{1}{3}$

## Odds:

Odds in Favor: # of favorable outcomes : # of unfavorable outcomes

Odds Against: # of unfavorable outcomes : # of favorable outcomes

Examples: Each section of the spinner has the same area. The spinner was spun 20 times. The table shows the results. What are the odds...

Red	Green	Blue	Yellow
5	9	3	3



① Against stopping on green? 11 : 9

② In favor of stopping on blue? 3 : 17

③ Against stopping on red or yellow?  $12:8 \Rightarrow \boxed{3:2}$

You try! You have a deck of 52 cards.

① What is the probability you...

a) Draw a black card?

$$\frac{26}{52} = \boxed{\frac{1}{2}}$$

b) Draw a black or a red card?

$$\frac{52}{52} = \boxed{1}$$

c) Draw an Ace?

$$\frac{4}{52} = \boxed{\frac{1}{13}}$$

d) Draw a Jack, Queen or King?

$$\frac{12}{52} = \boxed{\frac{3}{13}}$$

e) Draw a spade?

$$\frac{13}{52} = \boxed{\frac{1}{4}}$$

② What are the odds...

a) Against drawing a red card?

$$1:1$$

b) In favor of drawing a card less than 5 (Aces are high)

$$12:40 \Rightarrow \boxed{3:10}$$

c) In favor of drawing the King of hearts?

$$\boxed{1:51}$$