

Probability vs. Odds

If you pick one student in this class, what is the probability that it is a girl?

$$8/19$$

If you pick one student in this class, what are the odds that you pick a girl?

$$8/11$$

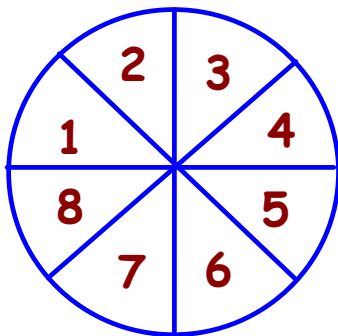
$$\text{Probability} = \frac{\text{Number true}}{\text{Total number possible}}$$

$$\frac{1}{8}$$

$$\text{Odds} = \frac{\# \text{ True}}{\# \text{ not True}}$$

1 to 8

1:8



Find the odds of:

a. getting a # < 7

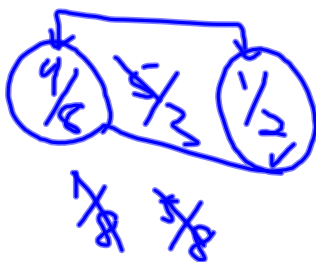
$\frac{6}{8} \rightarrow \text{Prob}$
 $6:2 = 3:1$

b. getting an odd.

$4:4 = 1:1$

c. getting a zero

$0:8$



d. what is the probability of getting a multiple of 2?

A bag contains 6 red marbles, 4 blue marbles and 2 gold marbles.

If you pull one marble out of the bag then what are the odds in favor of pulling a blue?

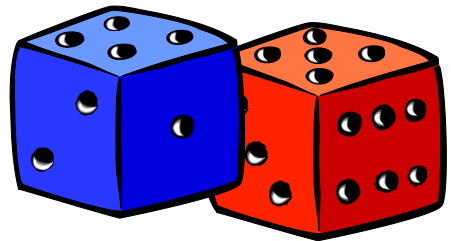
$$4:8 = \boxed{1:2}$$

If you pull one marble out of the bag then what are the odds against pulling a gold?

$$\cancel{10:12} \rightarrow 5:6$$

$$10:2 \rightarrow \boxed{5:1}$$

When rolling two die, what are the odds of getting a sum less than 6?



Sample space

	1	2	3	4	5	6
1	1,1	1,2	1,3	1,4	1,5	1,6
2	2,1	2,2	2,3	2,4	2,5	2,6
3	3,1	3,2	3,3	3,4	3,5	3,6
4	4,1	4,2	4,3	4,4	4,5	4,6
5	5,1	5,2	5,3	5,4	5,5	5,6
6	6,1	6,2	6,3	6,4	6,5	6,6

$$10:26$$

$$\boxed{5:13}$$

		0	00
1 TO 18	1ST 12	1	2 A
		4	5 6
EVEN	H	7	8 B 9
		10	11 12
2ND 12	C	13	14 15
		16	17 18
3RD 12	D	19	20 21
		22	23 24
ODD	K	25	26 27
		28	29 30
19 TO 36	F	31	32 33
		34	35 36
Outside Bets		2:1	G I 2:1

What are the odds of winning bet H? $12:24$ $1:2$

What are the odds of winning bet D? $4:32$ $1:8$

What are the odds of winning bet A? $1:35$

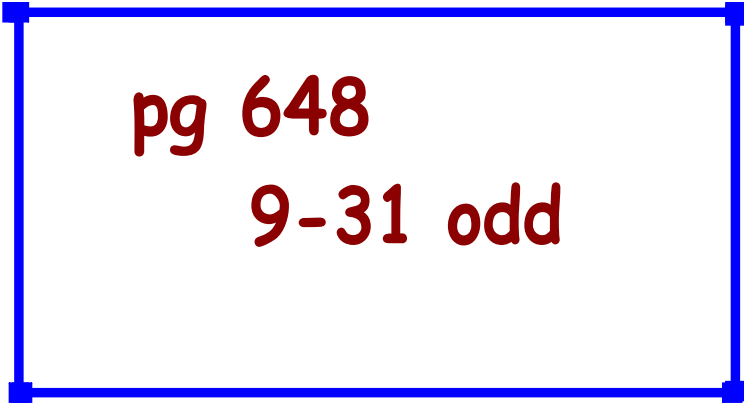
If you bet \$10 on G, how much will you win?

$12:24$ $1:2$ 20

		0	00
1 TO 18	1ST 12	1	2 A
		4	5 6
EVEN	H	7	8 B 9
		10	11 12
2ND 12	C	13	14 15
		16	17 18
3RD 12	D	19	20 21
		22	23 24
ODD	K	25	26 27
		28	29 30
19 TO 36	F	31	32 33
		34	35 36
Outside Bets		2:1	G I 2:1

If you bet \$10 on A, how much will you win?

$1:35$ $\$350$



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9-31 odd