

HW 9-1  
Probability

Int 1

Unit 9

**INSTRUCTIONS:** For each of the following situations, write the probability as a **SIMPLIFIED fraction, a decimal, and a percent**. Do NOT round answers. Use a repeating bar when necessary.

There are 4 blue marbles, 5 red marbles, 1 green marble, and 2 black marbles in a bag. Suppose you select one marble at random. Find each probability.

1. P(black)

$$\frac{1}{6} = .1\bar{6} = 16.\bar{6}\%$$

2. P(green)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

3. P(red)

$$\frac{5}{12} = .41\bar{6} = 41.\bar{6}\%$$

4. P(not blue)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

5. P(red or green)

$$\frac{1}{2} = .5 = 50\%$$

6. P(blue or black)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

7. P(neither red nor black)

$$\frac{5}{12} = .41\bar{6} = 41.\bar{6}\%$$

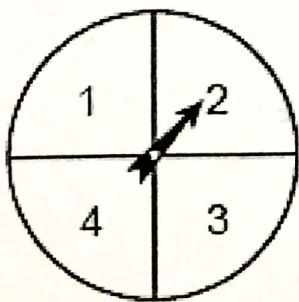
8. P(blue, red, or green)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

9. P(blue, red, green, or black)

$$\frac{12}{12} = 1 = 100\%$$

A spinner like the one at the right is used in a game. Determine the probability of spinning each outcome if the spinner is equally likely to land on each section.



11. P(an odd number)

$$\frac{1}{2} = .5 = 50\%$$

12. P(a one or a four)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

13. P(the letter A)

$$\frac{0}{4} = 0 = 0\%$$

14. P(a number greater than 1)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

15. P(a prime number) \* 2 & 3 are the only prime #'s on the spinner

$$\frac{1}{2} = .5 = 50\%$$

16. P(not a three)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

10. P(a two)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

**INSTRUCTIONS:** For each of the following situations, write the probability as a **SIMPLIFIED fraction, a decimal, and a percent**. Do NOT round answers. Use a repeating bar when necessary.

The spinner shown is spun once.

17. P(C)

$$\frac{1}{6} = .1\bar{6} = 16.\bar{6}\%$$

19. P(M or P)

$$\frac{1}{3} = .\bar{3} = 33.\bar{3}\%$$

21. P(not T)

$$\frac{6}{6} = 1 = 100\%$$

18. P(G)

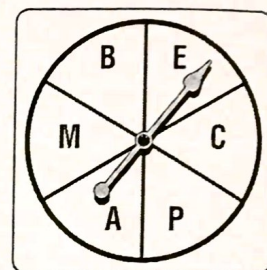
$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

20. P(B, E, or A)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

22. P(not M)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$



Eight cards are marked 3, 4, 5, 6, 7, 8, 9, and 10 such that each card has exactly one of these numbers. A card is picked without looking. Find each probability.

23. P(9)

$$\frac{1}{8} = .125 = 12.5\%$$

26. P(less than 3)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

29. P(not 6)

$$\frac{7}{8} = .875 = 87.5\%$$

24. P(3 or 4)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

27. P(odd)

$$\frac{1}{2} = .5 = 50\%$$

30. P(not 5 and not 10)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

25. P(greater than 5)

$$\frac{5}{8} = .625 = 62.5\%$$

28. P(4, 7, or 8)

$$\underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

The spinner is spun once. Write a sentence stating how likely it is for each event to happen. Justify your answer using math.

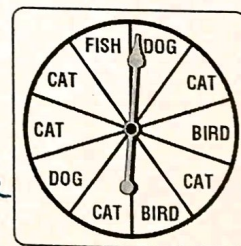
31. Fish

$\frac{1}{10} = .1 = 10\%$   
It is NOT likely to spin fish because 10% is a low chance.

32. Cat

33. Bird, cat or fish

$\frac{8}{10} = \frac{4}{5} = .8 = 80\%$   
It is very likely to land on one of those because 80% is a HIGH percent chance.



34. Of the water lilies in the pond, 43% are yellow. The other lilies are white. A frog randomly jumps onto a lily. Describe the complement of the frog landing on a yellow lily in a sentence, and find its probability.

A number cube is rolled 20 times and lands on 1 two times and on 5 four times. Find the experimental probability. Then compare the experimental probability to the theoretical probability.

35. Landing on a 5

Experimental Probability:  $\frac{4}{20} = \frac{1}{5} = .2 = 20\%$  Experimental Probability:

Theoretical Probability:  $\frac{1}{6} = .1\bar{6} = 16.\bar{6}\%$  Theoretical Probability:

Compare:

They aren't the same, but they're close!

In experiments, you need to roll the dice many, many times for the experimental probability to be close to what we know should happen (theoretical probability).

Compare:

The spinner at the right is spun 12 times. It lands on blue 1 time.

37. What is the experimental probability of landing on blue?

$$\frac{1}{12}$$

38. Are the experimental and theoretical probabilities close? Explain.

