Sec 2.1 -Probability
Basic Probability   Name:

Determine whether each of the following are __EMPIRICAL__, __THEORETRICAL__, or __SUBJECTIVE__ probability and then determine the probability.

1. What is the probability of rolling a standard six sided number cube to a number with 4 letters in the spelling of that number?

Circle one of the following:
Theoretical   Empirical   Subjective

Fraction:	Decimal:	Percent:

2. Janice attempted to shoot 34 free throws with a basketball. She made 19 of the free throws. Based on those results what would you estimate the probability to be that she makes the next free throw?

Circle one of the following:
Theoretical   Empirical   Subjective

Fraction:	Decimal:	Percent:

3. A weather forecaster suggests that there is a 40% chance of snow and ice on the next day.

Circle one of the following:
Theoretical   Empirical   Subjective

Fraction:	Decimal:	Percent:

4. A person has 5 coins in their pocket. A dime, 2 pennies, a quarter, and a nickel. If a person randomly picks one coin out of their pocket. What would the probability be that they get a penny?

Circle one of the following:
Theoretical   Empirical   Subjective

Fraction:	Decimal:	Percent:

5. Define **_Complement_** of an event: _____

   _____

6. What is the **_Complement_** of drawing a "numbered" card from a standard deck of shuffled cards? _____

   _____

7. What is the difference between the **probability** and the **odds** of winning? _____

   _____

8. Determine the following.

   A. What are the **odds** of rolling a standard six sided die to the number "2"?

   B. If the probability of winning is 20% what are the **odds** of winning?

CLASSIC PROBABILITY

9. What is the probability of flipping a coin and having it land on "Tails"? (write your answer in fractional form, decimal form, and as a percentage)
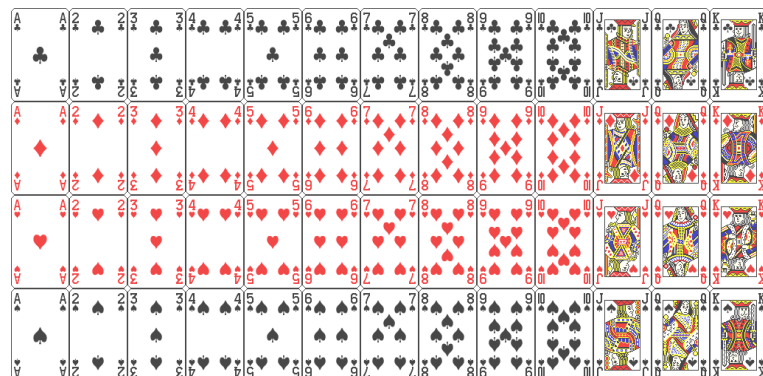
Fraction:	*Decimal:*	*Percent:*

10. What is the probability of drawing an odd numbered card from a standard deck of shuffled cards?

11. A person has 20 Rap songs, 15 R&B songs, 20 Alternative songs, 12 Pop songs, 5 Country songs, and 18 Hip Hop songs stored on an MP3 player (a total of 90 songs). If the person set the MP3 player to random shuffle, what are the odds of the first song being played being a Country song?

Decimal:

Odds:

12. What is the probability of flipping two coins and having both coins land on tails *(make a tree diagram first)*?

13. What is the probability of flipping 3 coins and having al l three land on tails *(make a tree diagram first)*?

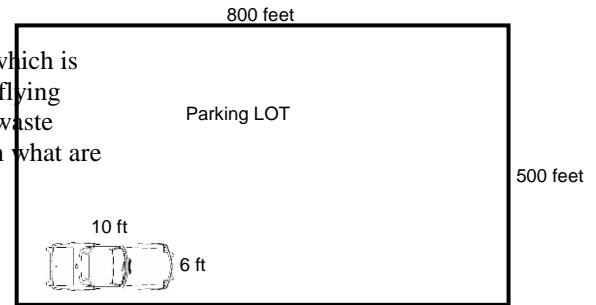14. What is the probability of flipping 3 coins and having exactly two of them land on tails?

Fraction:

Fraction:

Fraction:

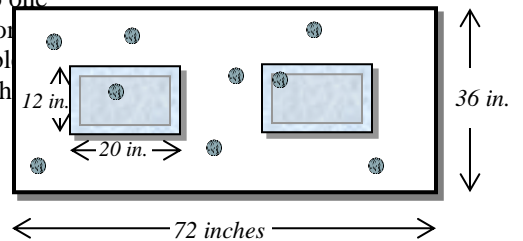## GEOMETRIC and CONTINUOUS PROBABILITIES

15. Determine the following **geometric** probabilities:

A. Tal-mart parking lot is 500 feet by 800 feet. You just parked your car, which is approximately a rectangle with the dimensions 6 feet by 10 feet. A bird flying overhead has just relieved himself by having a bowel movement. If the waste material has an equal chance of landing anywhere in the parking lot then what are the chances of it hitting your car.
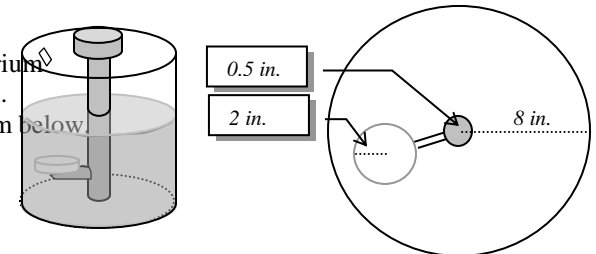
800 feet

Parking LOT

500 feet

10 ft

6 ft

Decimal:

B. At an amusement park they allow attendants to try and throw a quarter onto one of two rectangular glass plates from a distance. The glass plates are sitting on rectangular table. If the quarter is returned to the thrower if it misses the table and we are assuming it equally likely to land anywhere on the table, then what is the probability of landing the quarter somewhere on one of the two glass plates?
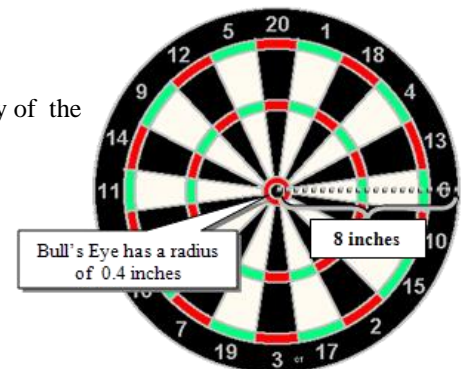
12 in.

36 in.

20 in.

72 inches

Percent:

C. At a Taco Mel's they have a game in which you drop a dime in an aquarium type device. If the dime lands on a special platform you win a free meal. Determine your odds of winning the free meal if it looks like the diagram below.

0.5 in.

2 in.

8 in.

Decimal:

D. Assuming a dart is to land somewhere on a dart board, what is the probability of the dart hitting the bull's eye?

Bull's Eye has a radius of 0.4 inches

8 inches

Decimal:

16. If a cable repairman is supposed to show up to for a repair between 1:00pm and 6:00pm and the home owner can't be home until 3:00pm, what is the probability that the home owner will be home when the cable repair man shows up (assuming the repairman is equally likely to come at any time during the specified range)?

Percentage: