# Unit 10 Final Review

For the semester 2 final, there will be 40 multiple choice questions total, 8 questions per unit. Please manage your time accordingly to study for the exam.

1. You randomly draw a marble out of a bag containing 4 green marbles, 6 blue marbles, 8 yellow marbles, and 2 red marbles. Find the probability of drawing a marble that is not yellow.

2.

Find the probability that a dart thrown at the circular target shown will hit the given region. Assume the dart is equally likely to hit any point inside the target.
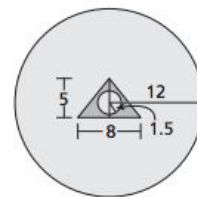
a. the center circle

b. outside the triangle

c. inside the triangle but outside the center circle

3.

A game at the state fair has a circular target with a radius of 12 centimeters on a square board measuring 30 centimeters a side, as shown. Players win if they are able to throw a dart and hit the circular area only.

$r = 12$ cm

30 cm
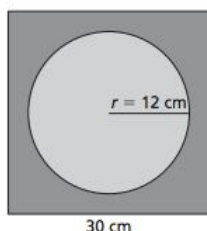
a. What is the probability that a dart will hit the circular region?

b. What is the probability that a dart will hit the square region that is outside the circle?

c. In order for a player to win a prize, that player must hit the circular region with 3 consecutive darts (darts removed after each toss). What is the probability of a player winning a prize?

4.

You are researching a method to determine what will give you the best chance of passing your driver's test. All 3 options for passing the test will cost you the same amount of money. You ask all your friends who have been involved in one of these 3 options. The table shows the results of your research. Based on this information, what method will give you the best chance to pass the driver's test?

	Passed	Not Passed
Book Class	18	6
Driver's School	31	11
Internet Class	8	3

5.

You are playing a game similar to shuffleboard, where you need to slide a puck into the light gray area of the board in order to score points. The board is surrounded by wood boards that keep the puck in the playing surface. An image of the board and its dimensions are shown to the right.

4 feet   1.5 feet

12 feet

5 feet
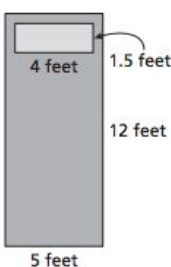
a. What is the probability that you slide the puck into the light gray area?

b. What is the probability that you slide the puck into the dark gray area?

6.

A small bag contains 6 pennies, 5 nickels, 3 dimes, 5 quarters, and 2 one-dollar coins.

a. You choose one coin at random from the bag. What is the probability that you choose a one-dollar coin or a dime?

b. You choose one coin at random, replace it, and then choose a second coin at random. What is the probability that you first choose a nickel and then choose a penny?

c. You choose one coin at random, do not replace it, and then choose a second coin at random. What is the probability that you choose a quarter followed by another quarter?

7. A normal distribution has a mean of 40 and a standard deviation of 8. Find the probability that a randomly selected x-value from the distribution is in the given interval.

a) At least 24
b) At most 48
c) Between 24 and 48

8.

a) A team of 17 softball players needs to choose three players to refill the water cooler

b) There are 15 applicants for four jobs: Computer Programmer, Software Tester, Manager, and Systems Engineer.

9. A survey found that 19% of the population owned dogs, 14% owned cats, and 6% of the population owned both a cat and a dog. Find the probability that a random person owns a cat or a dog.

10. In a standard deck of 52 cards. Find

a) P(diamond or face card)
b) P(club or NOT a face card)
c) P(heart & a black card) w/0 replacement

Answer Key:

1) $\frac{3}{5}$

2) a) 0.0156   b) 0.96   c) 0.0286

3) a) 0.5027   b) 0.4973   c) 0.127

4) Book class

5) a) 0.10   b) 0.90

6) a) $\frac{5}{21}$ b) $\frac{10}{147}$ c) $\frac{1}{21}$

7) a) 97.5%   b) 84%   c) 81.5%

8) a) combination; 680   b) permutation; 32,760

9) 27%

10) a) $\frac{11}{26}$ b) $\frac{43}{52}$ c) $\frac{13}{102}$