Integrated Math 3: Chapter 20 Review Name:_____Block:_____

**LT A & B (20.1) I can calculate relative frequencies and probabilities using a two-way table.**

The two-way frequency table shows the number of students who participate in school clubs at Maple Grove High School.

| Club Participation | Grade: Freshmen | Sophomores | Juniors | Seniors | Total |
|---|---|---|---|---|---|
| Participates in School Clubs | 31 | 25 | 44 | 40 | 140 |
| Does not Participate in School Clubs | 88 | 101 | 76 | 75 | 340 |
| Total | 119 | 126 | 120 | 115 | 480 |

1.) Calculate the relative frequency of each entry in the two-way table. Record the results in the table. Write each result as a fraction and as a percent rounded to the tenths place.

| Club Participation | Grade: Freshmen | Sophomores | Juniors | Seniors | Total |
|---|---|---|---|---|---|
| Participates in School Clubs | | | | | |
| Does not Participate in School Clubs | | | | | |
| Total | | | | | |

2) If a student is selected at random, what is the probability that he or she

a) Is a Junior and does not participate in School Clubs? b) Is a Sophomore and participates in school clubs?

c) is a Senior or does not participate in school clubs

d) is a Sophomore or a Junior or participates in school clubs?

**LT C (20.2): I can find conditional probabilities.**

3) Walt is selling candy outside the supermarket to raise money for new uniforms for the gymnastics team. The probability of a customer stopping to talk to Walt and buying some candy is 2/9 . The probability of a customer just stopping to talk to Walt is 5/12. Fifty out of the 120 customers at the supermarket bought candy from Walt.

a. What is the probability of a customer buying candy from Walt given that they stopped to talk to him?

b. Are a customer talking to Walt and a customer buying candy from Walt independent or dependent events? Explain your reasoning.

**LT G (20.3): I can calculate circular permutations.**

4. Mrs. Rynearson is a Kindergarten teacher. She asks her students to sit in a circle. Calculate the number of arrangements for each number of students.

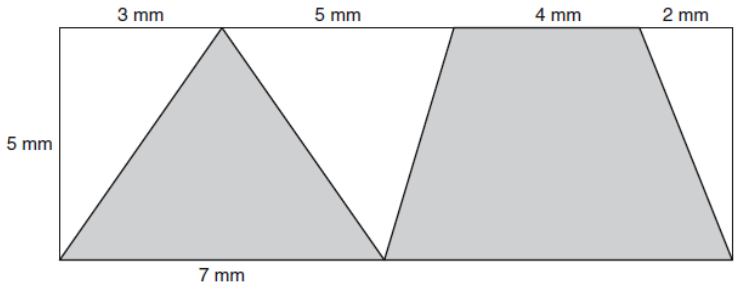
a. four students

b. six students

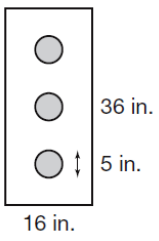
**LT I (20.5): I can determine geometric probabilities.**

5) A dart is thrown and lands on random spot on each target. Determine the probability of hitting the shaded region. Write your answers as a percent rounded to the nearest tenth.

a) The board shown is a triangle and a trapezoid inside of a rectangle.




b) A bean bag toss game has 3 congruent circular holes set in a rectangular board with the dimensions shown. What is the probability of a bean bag hitting a random spot on the board and landing in one of the holes? Round to the nearest tenth percent.



**LT D & E: I can recognize a Combination or a permutation situation and calculate the number of outcomes.**

6) State whether each question uses permutations or combinations. Then calculate the answer.

a. The Debate Club contains 13 members. They need to elect 3 members to the executive board: a president, vice president, and secretary. How many different executive boards are possible?

b. Quentin used 7 websites during research for a report. How many different ways can he list the websites in his bibliography?

c. Tyler has 28 songs on his computer. He is transferring 8 songs to his MP3 player. How many different ways can the songs be chosen?

d. Josy is making a pattern with 2 squares, one triangle, and one circle. How many different patterns can Josy make?

e. Sydney works at a kennel. She takes the 8 dogs at the kennel out for a walk in groups of 2. How many different groups of dogs can Sydney take?

**LTF(20.3) I can calculate permutations with <u>repeated elements</u>.**

7) Calculate the number of arrangements.

a. How many different 8-digit numbers can be written using the digits 1, 1, 2, 7, 7, 7, 8, and 9?

b. How many different ways can the letters in the word GEOMETRY be arranged?

**LTH(20.4) I can use formulas to determine probabilities in situations involving independent trials.**

8) A number cube has 5 green sides and 1 orange side.

a. What is the probability of getting a green? B. What is the probability of getting an orange

c. What is the probability of 4 green outcomes and 1 orange outcome when the number cube is rolled 5 times?

d. What is the probability of 3 green outcomes and 4 orange outcomes when the number cube is rolled 7 times?

e. What is the probability of 2 green outcomes and 2 orange outcomes when the number cube is rolled 4 times?

**LTJ (20.5): I can find the expected value of problem.**

9) Based on past results, a basketball team has a 15% chance of scoring a 3-point field goal on an out of bounds play and a 22% chance of scoring a 2-point field goal. There is also a 14% chance that the team will score two 1-point free throws on the play and a 6% chance that the team will score one 1-point free throw.

a. What is the expected number of points the team will score on the out of bounds play?

10) "Wheel of Fortune" just got a new wheel! On it there are 6 slots worth $200, 15 slots worth $400, 2 slots worth $600, 1 slot worth $1000, 6 slots with no money, and 1 slot with a car worth $20,000. You are offer a choice of $800 or spin the wheel.

a. What is the expected winning on one turn (cash and prizes)?

b. Should you keep the $850 or spin the wheel? Explain your reasoning.

11) You are considering investing $10,000 in a new company. Experts predict that there is a 12% chance that investors will double their money, a 40% chance that they will increase their investment by 50%, a 30% chance that they will lose half of their investment, and a 18% chance that they will lose their entire investment.

a. What is the expected value of the investment's return?