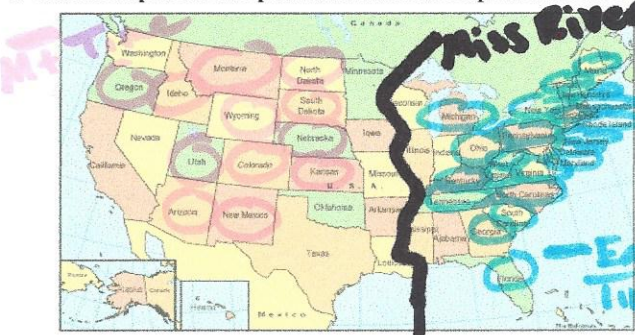


I. Use the map to find the probabilities below. Express answers as a fraction and as a percent.



- 1.) P (next to the Pacific Ocean) =  $\frac{5}{50} = \frac{1}{10} = 10\%$
- 2.) P (borders Mexico) =  $\frac{4}{50} = \frac{2}{25} = 8\%$
- 3.) P (has at least five neighboring states) =  $\frac{21}{50} = 42\%$
- 4.) P (is surrounded by water) =  $\frac{5}{50} = 2\%$
- 5.) P (next to the Atlantic Ocean) =  $\frac{14}{50} = 28\%$
- 6.) P (borders Canada) =  $\frac{11}{50} = 22\%$
- 7.) P (next to the Mississippi River) =  $\frac{10}{50} = \frac{1}{5} = 20\%$
- 8.) P (has Mountain Standard Time) =  $\frac{12}{50} = \frac{6}{25} = 24\%$
- 9.) P (next to the Gulf of Mexico) =  $\frac{5}{50} = \frac{1}{10} = 10\%$
- 10.) P (has Eastern Standard Time) =  $\frac{21}{50} = 42\%$

II. Nicholas is posting 2 photographs on his website. He has narrowed his choices to 4 landscape photographs and 3 portraits. If he chooses the two photographs at random, find the probability of each selection. Express your answers as a percent

- 11.) P (2 Portrait)  $\frac{3C2}{7C2} = 14.3\%$
- 12.) P (2 Landscape)  $\frac{4C2}{7C2} = 28.6\%$
- 13.) P (1 of each)  $\frac{4C1 \cdot 3C1}{7C2} = 57.1\%$

III. The Robinsons have a collection of 28 video movies, including 12 westerns and 16 science fiction. Elise selects 3 of the movies at random to bring to a sleep-over at her friend's house. Find the probability of each selection. Express your answer as a percent.

- 14.) P (3 Western)  $\frac{12C3}{28C3} = 6.7\%$
- 15.) P (3 Science Fiction)  $\frac{16C3}{28C3} = 17.1\%$
- 16.) P (2 Western and 1 Science Fiction)  $\frac{12C2 \cdot 16C1}{28C3} = 32.2\%$
- 17.) P (3 Comedy)  $\frac{0C3}{28C3} = 0\%$
- 18.) P (1 Western and 2 Science Fiction)  $\frac{12C1 \cdot 16C2}{28C3} = 44\%$
- 19.) P (2 Science Fiction and 2 Western)  $\frac{16C2 \cdot 12C2}{28C4} = 24\%$

IV. A bag contains 1 green, 4 red, and 5 yellow balls. Two balls are selected at random. Find the probability of each selection. Express your answer as a percent.

- 20.) P (2 red)  $\frac{4C2}{10C2} = 13.3\%$
- 21.) P (1 red and 1 yellow)  $\frac{4C1 \cdot 5C1}{10C2} = 44.4\%$
- 22.) P (1 green and 1 yellow)  $\frac{1C1 \cdot 5C1}{10C2} = 11.1\%$
- 23.) P (2 green)  $\frac{1C2}{10C2} = 0\%$
- 24.) P (2 yellow and 1 red)  $\frac{5C2 \cdot 4C1}{10C3} = 88.9\%$

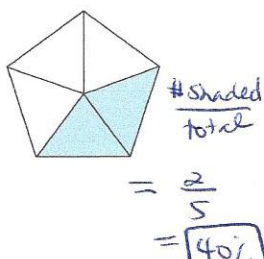
V. Use the table that shows the range of verbal SAT scores for freshmen at a small liberal arts college. If a freshmen student is chosen at random, find each probability. Express answer as a percent.

Score Range	400–449	450–499	500–549	550–599	600–649	650+
Number of Students	129	275	438	602	620	412

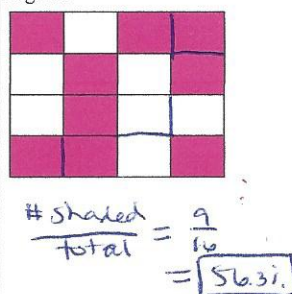
- 25.) P (600 – 649)  $\frac{620}{2476} = 25.04\%$
- 26.) P (400 – 499)  $\frac{129+275}{2476} = 16.3\%$
- 27.) P (450 – 559)  $\frac{275+438+602}{2476} = 53.1\%$
- 28.) P (at least 650)  $\frac{412}{2476} = 16.7\%$

VI. Find the geometric probability of each figure below. Express answer as a percent. Must show work!

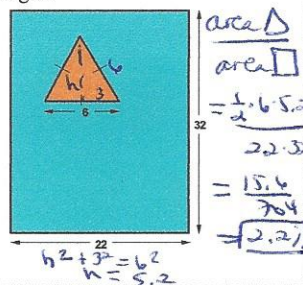
29.) A dart hits the board below. Find the probability that the dart landed in the shaded region.



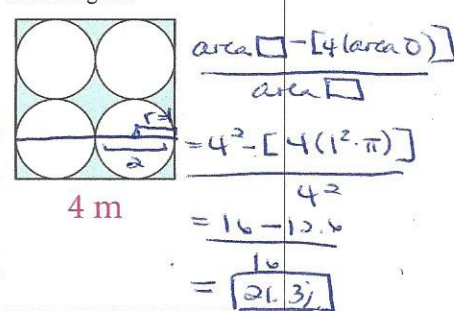
30.) A coin is tossed on the mat below. Find the probability that the coin landed in the shaded region.



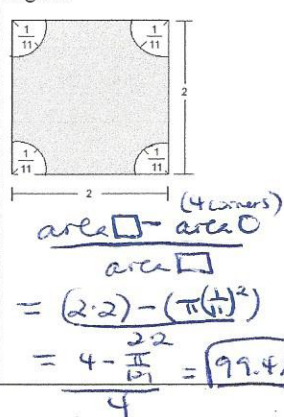
31.) A sky diver is trying to hit a triangular target on a rectangular landing pad. What is the probability that he will hit his target?



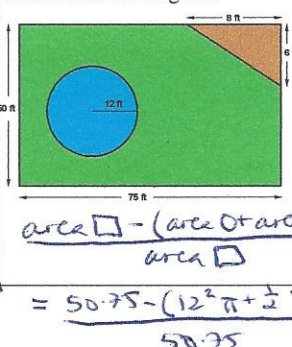
32.) A dart hits the dart board below. Find the probability that the dart landed in the shaded region?



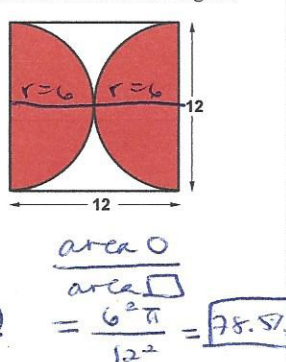
33.) What is the probability of a sky diver landing in the shaded region?



34.) The rectangular yard shown has a circular pool and a triangular garden. A ball from the adjacent golf course lands at a random point within the yard. Find the probability that the golf ball landed on the grass.



35.) A dart is thrown at the board below. Find the probability that the dart hit the shaded region.



36.) Arrow is being thrown at the target below. The 10-point circle has a 4.8 inch diameter and each of the other rings is 2.4 inches wide. What is the probability of the arrow hitting the blue area?

