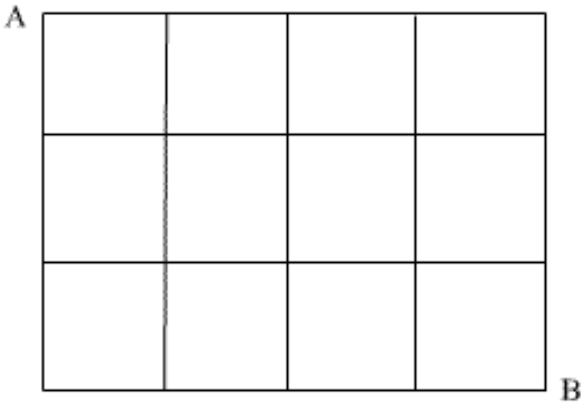
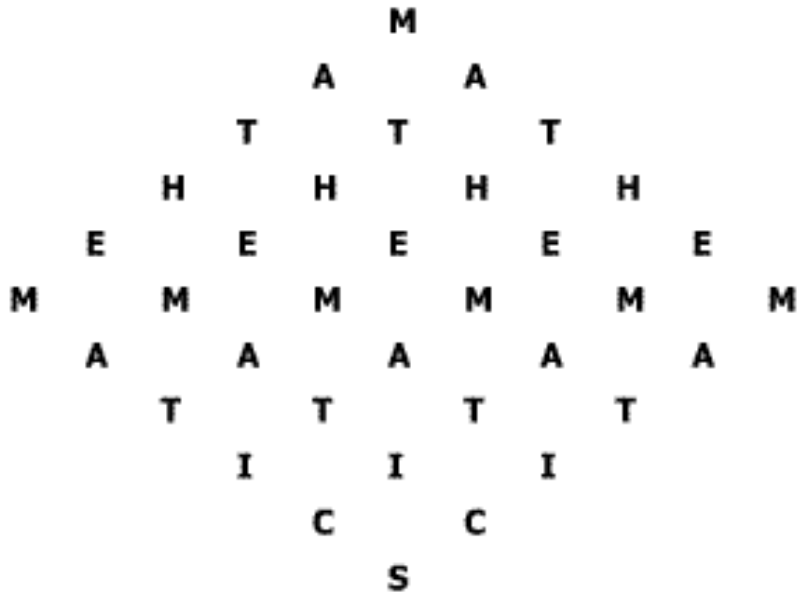
GRADE 12 APPLIED
UNIT A: PROBABILITY
PATHWAYS

Name: _____
Date: _____

1. Determine how many ways there are to go from A to B if you may go only right or down?



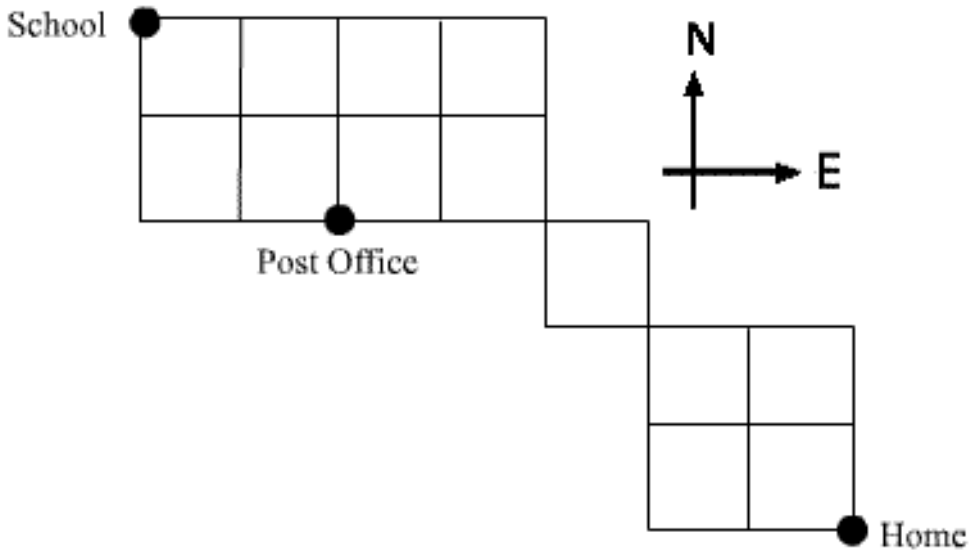
2. How many ways can the word **"MATHEMATICS"** appear in the following array if you must spell the word in proper order?



3. Suppose that, when you go home from school, you like to take as great a variety of routes as possible, and that you are equally likely to take any possible route. You will walk only east or south. (Diagram below)

a. Determine how many ways you can go from the school to home?

b. Calculate the probability that you will walk past the post office on your way home?

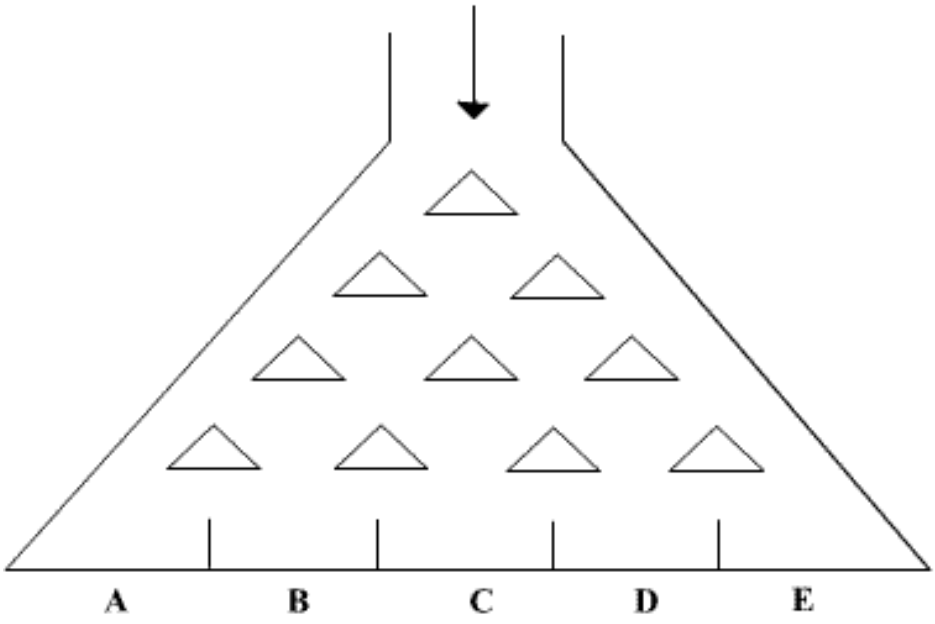


4. A ball is dropped into the top of the game. Each time it strikes a pin (triangle), it is equally likely to go to the left or right. The ball will continue downwards until it stops in one of the slots A to E.

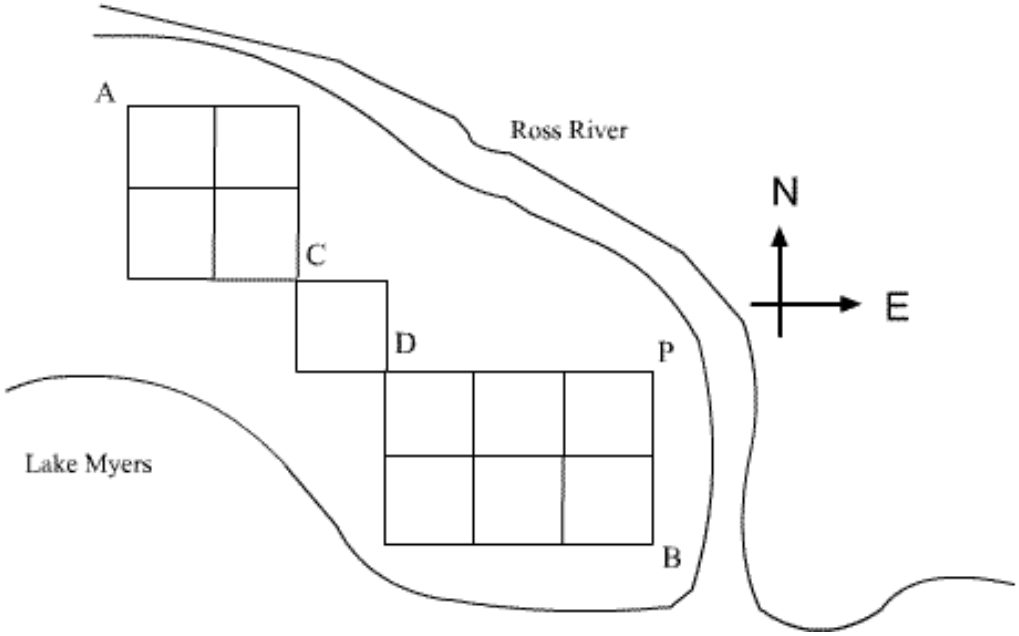
a. Determine the probability that the ball will come to rest in slot D?

b. Calculate the probability that the ball will come to rest in slot C?

c. State the probability that the ball will come to rest in slot E?



5. The diagram shows a road grid in the town of Esker. The roads are restricted by a river on one side and a lake on the other. Anson lives at point A and his friend Bettina lives at point B. Anson visits Bettina frequently, and likes to take a different route each time.



Anson stays on the roads and travels only south and east. Determine how many routes there are there from:

a. A to B?

b. A to B if he must go through point P?

What is the ***probability*** that Anson will go through point P if all routes are randomly chosen?

What is the ***odds*** that Anson will go through point P if all routes are randomly chosen?

6. When flipping 5 (fair) coins, what is the probability of flipping:

   a. 1 head

   b. 2 heads

   c. 3 heads

   d. 4 heads

   e. 5 heads (or 0 tails)

   f. All tails (ie: no heads)

7. Make a ‘histogram’ of the above probabilities.
(Optional: Try it in EXCEL or Sheets too! Try it on the TI 83 Graphing Calculator too!)