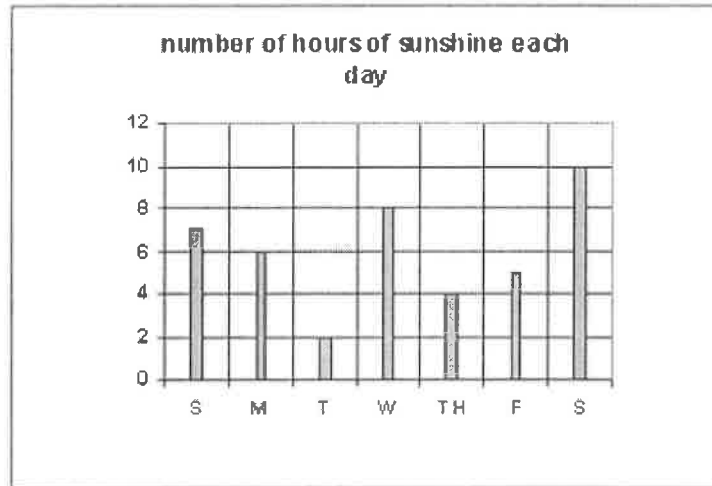


JUST CHECKING YOUR ... STATISTICS SKILLS

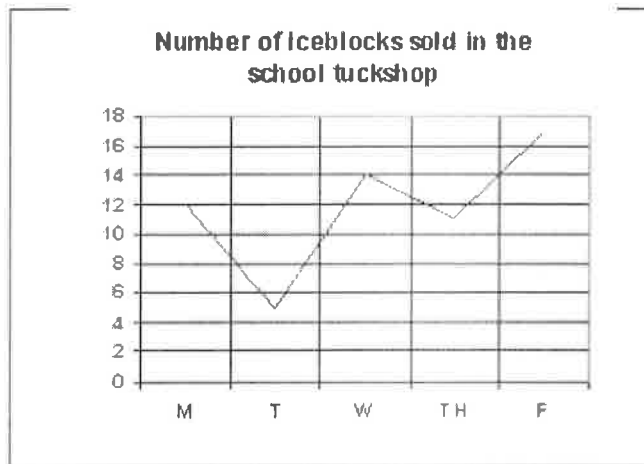
1.



This column graph shows the number of hours of sunshine recorded each day during one week.

- (a) Which day had 4 hours of sunshine? Answer
 - (b) How many hours of sunshine were there on Monday? Answer
 - (c) On what day do you think it rained? Answer
 - (d) Explain your choice for part (c)
-

2. This is a time-series graph for ice blocks sold in the school tuck shop.



- (a) What day do you think was the warmest? Answer
 - (b) Explain your answer to part (a)
-

(c) On the graph, draw a **trend-line** for the data

3. The number of pies sold in the school tuck shop in one week is shown in the table

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Pies sold	20	25	20	23	22

(a) What was the **median** number of pies sold?

_____ Answer

(b) What number of pies was the **mode**?

_____ Answer

(c) Calculate the **mean** number of pies sold during the week.

_____ Answer

4. At a shop, milkshakes come in 4 flavours.
This table shows how many of each flavour were sold in one day.

Milkshake
flavour
Number sold

(a) What was the chance that a milkshake flavour was Banana? Answer

Chocolate
18

(b) If 120 milkshakes were sold the next day, how many Vanilla flavoured ones would you expect?

Banana
10

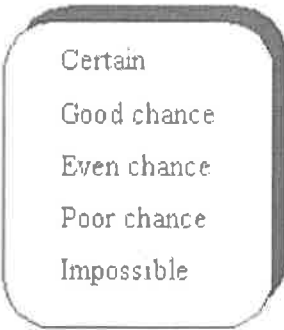
_____ Answer

Vanilla
7

Lime
5

5. Use three of the words or phrases in the box on the right to describe these events.

- (a) Someone from your class will be absent from Maths the next time you have it.
- (b) It will not rain in Auckland in the next two years.
- (c) The sun will rise tomorrow.



6. Think of "rolling a die".

Write down an event that has a **better than even chance** of happening.

.....

7. A tray of eggs has 23 brown eggs and 13 white eggs on it.

- (a) Henry takes one and eats it for breakfast. What is the chance that it is a brown one?
.....
- (b) Henry's sister Jade comes along after Henry has eaten his brown egg and takes an egg for her breakfast.
What is the chance that Jade's egg is a white one?
.....

8. Akosita bought a big bag of mixed toffee and nut centre chocolates. She and 4 friends grabbed a handful of chocolates and started to eat them. These are the type of lollies they ate.

toffee, toffee, nut, nut, toffee, toffee, toffee, toffee, nut, toffee.

- (a) Based on what they have eaten so far, what is the chance that the next chocolate is a toffee?
.....
- (b) If the bag had 60 chocolates in it, how many nut centres would you expect?
.....

9. What is the probability that a coin will come down Heads three times in a row?

PINK AND BLUE

What you need:

Beans, counters or blocks of different colours. We used pink and blue.

What to do:

- ☺ Take 3 beans, 2 pink and 1 blue and shake them together in a cup.
- ☺ Without looking take one bean out and look at the remaining 2 beans.
- ☺ Record if they are the same or different.
- ☺ Repeat 6 times, recording your results.

- | | |
|---------|---------|
| 1. | 4. |
| 2. | 5. |
| 3. | 6. |

What is the P(same) and P(different)? Fill in the big results table below.

- ☺ Add another pink bean so that you have 3 pink and one blue. Shake them together in a cup.
- ☺ Without looking remove two beans and look at the remaining 2 beans.
- ☺ Record if they are the same or different.
- ☺ Repeat 6 times, recording your results.

- | | |
|---------|---------|
| 1. | 4. |
| 2. | 5. |
| 3. | 6. |

What is the P(same) and P(different)? Fill in the big results table below.

- ☺ Add another pink bean, shake and remove three beans and look at the remaining 2 beans. Repeat 6 times, recording your results.

- | | |
|---------|---------|
| 1. | 4. |
| 2. | 5. |
| 3. | 6. |

What is the P(same) and P(different)? Fill in the big results table below.

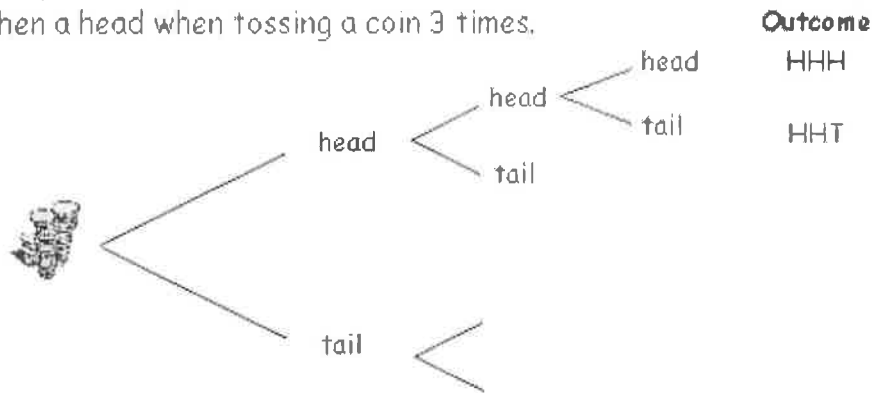
What to record:

Beans		Same	Different	Total Combinations	P(same)	P(different)
Pink	Blue					
2	1					
3	1					
4	1					
5	1					
6	1					

Write your own conclusion:

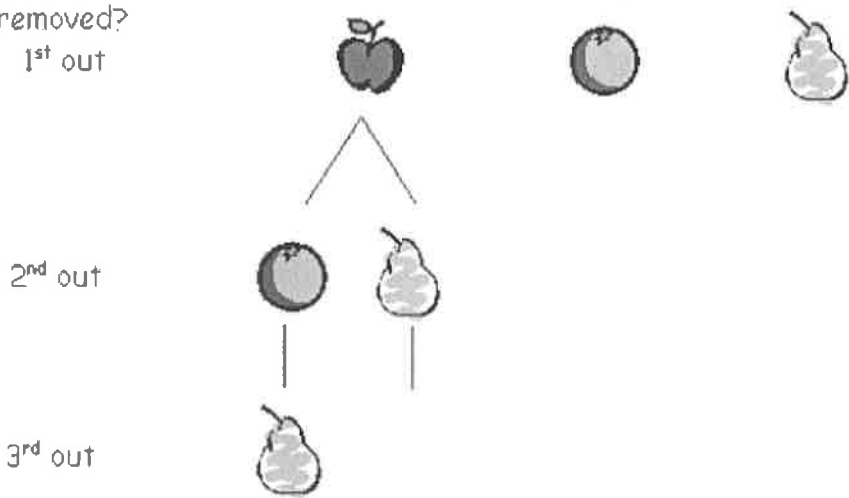
PROBABILITY TREES

1. Complete this probability tree to find the probability of getting 2 tails and then a head when tossing a coin 3 times.



$P(TTH) =$

2. A bag contains an apple, a pear and an orange. If one fruit is removed at random (and not replaced), what is the probability of guessing the order they are removed?



$P(\text{guessing order}) =$

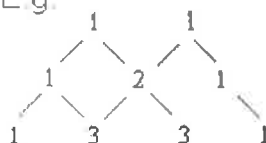
3. For the following menu, draw a probability tree to show the total number of meals one can have with one entree, one main and one dessert.

MENU		
Entree	Main	Dessert
<ul style="list-style-type: none"> 🍷 Shrimp 🍷 Cocktail 🍷 Avocado 🍷 Ritz 	<ul style="list-style-type: none"> 🍷 Steak 🍷 Pizza 🍷 Sole 🍷 Lasagne 	<ul style="list-style-type: none"> 🍷 Ice-cream 🍷 Pavlova 🍷 Italian 🍷 Kisses

Total combinations =

PASCAL'S TRIANGLE

Pascal's Triangle is a quick reference for finding the odds governing combinations. Each number in the triangle is obtained by adding the numbers right and left above it. E.g.



- Complete the Pascal's Triangle given.

An example:

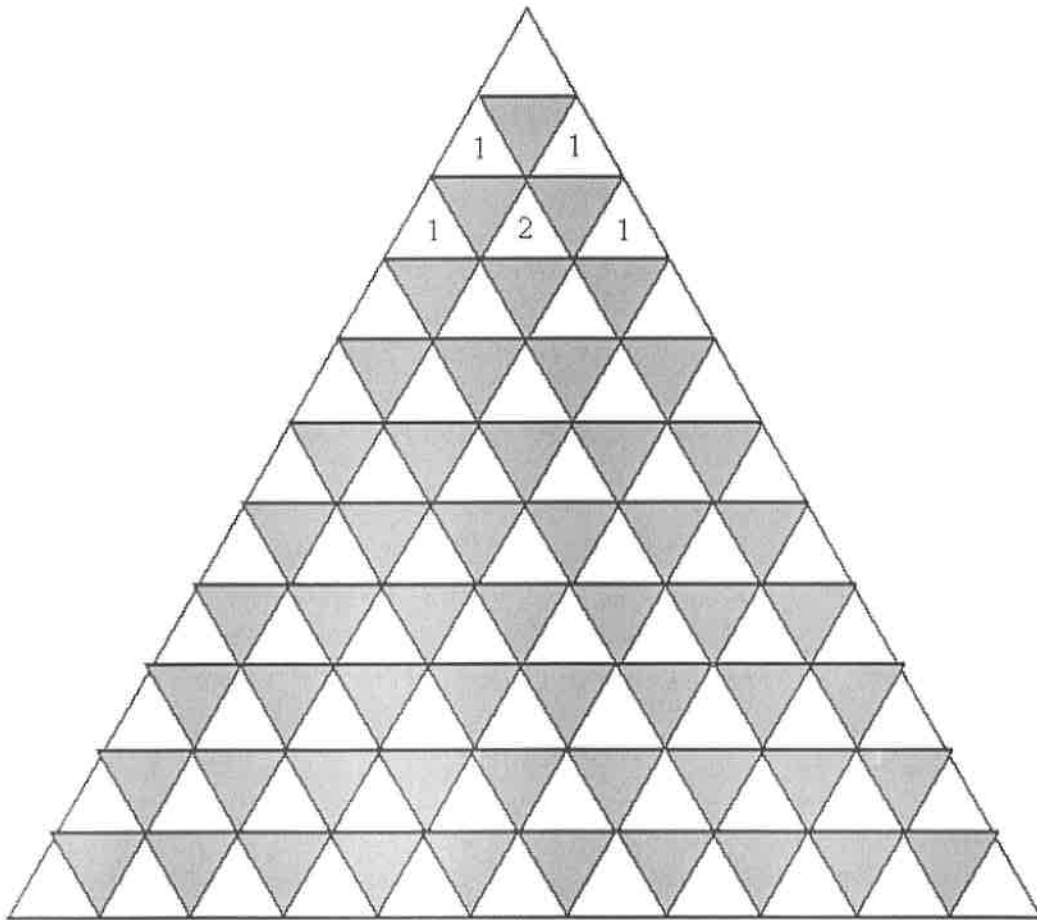
To find the probability of any boy-girl combination in a 5 child family.

- There are 5 children involved – look at the 5th row from the top.
- Total all the numbers in that row. There are 32 total boy-girl combinations.
- The numbers at the end of the rows give the probability of the least likely combination ie. all girls or all boys, $P(\text{all boys}) = 1$ in 32.
- The middle number gives the most likely combination ie. $P(2 \text{ girls and } 3 \text{ boys}) = 10$ in 32 or 5 in 16.

Now use your table:

- What is the probability of tossing a coin 6 times and getting all heads?
What is the probability of tossing a coin 4 times and getting 3 heads and 1 tail?
What is the probability of tossing a coin 7 times and getting 2 heads and 5 tails?
- What is the probability of having a family of 8 girls?
What is the probability that the 9th child is a boy?
What is the probability of a family of 9 girls?
- By looking at the totals for each line of the Pascal's triangle try and discover the pattern. Without enlarging the triangle calculate the probability of having a family of 13 boys.
(Mrs Emroy Harrison of Johnson, Tennessee, was 'Honor Mother of the Year' in 1955. She had 13 boys.)

PASCAL'S TRIANGLE



Name _____ Date: _____

Statistics & Probability

Pop Quiz! 😊

Directions: In the space to the right, determine the probability of each question.

1) Drawing a 10 from a deck of cards? _____

2) Drawing 3 cards that are all aces from a deck of cards? _____

3) Drawing a 3 from a deck of cards? _____

4) Rolling an 2 on a die? _____

5) Drawing a 6 of clubs from a deck of cards? _____

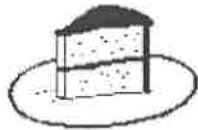
6) Drawing a heart from a deck of cards? _____

7) Drawing 2 cards that are all 9 from a deck of cards? _____

8) Drawing a club from a deck of cards? _____

9) Drawing a King from a deck of cards? _____

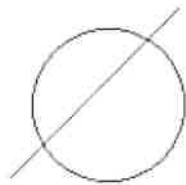
10) Drawing 2 cards that are all 2 from a deck of cards? _____



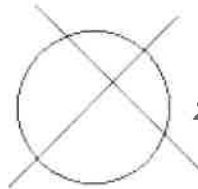
Eating Cake

Granny Tilly has many grandchildren. When she cuts up one of her enormous cakes to share amongst them she doesn't cut the cake to get all the pieces the same size. She cuts the cake to get as many pieces as possible and then distributes the different size pieces according to age.

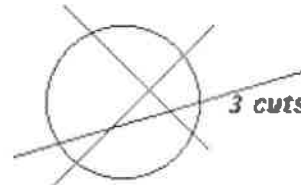
So...



1 cut

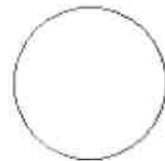


2 cuts

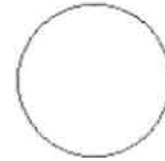


3 cuts

Draw a picture for a cake with



4 cuts



5 cuts

so you get the maximum number of pieces possible.

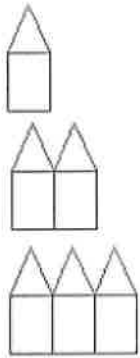
Find a rule relating the number of pieces (p) to the number of cuts (c).
Completing the table below may help.

Number of pieces (p)	Number of cuts (c)
	1
	2
	3
	4
	5
	10
	20
p	

Rule :

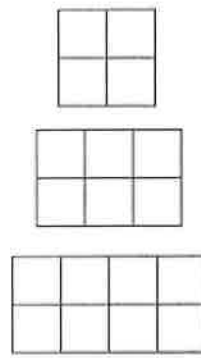
WHAT NEXT?

Row of Houses



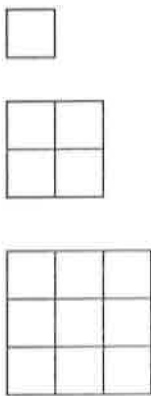
No. of Houses	No. of 'walls'
1	6
2	11
3	
4	
5	
15	
n	

Matches



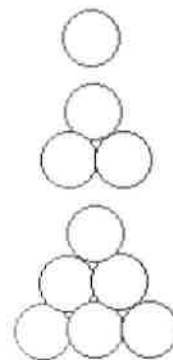
No. of squares	No. of matches
4	12
6	17
8	
10	
20	
60	
n	

Tiles



No. of tile at base	Total no. of tiles
1	1
2	4
3	
4	
5	
60	
n	

Circles



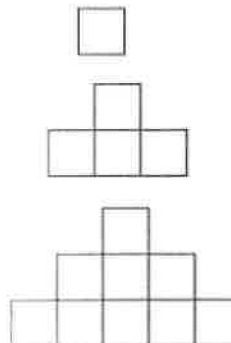
No. of circles at base	Total no. of circles
1	1
2	3
3	
4	
5	
50	
n	

Diagonals



No. of sides	No. of diagonals
4	2
5	5
6	
8	
12	
20	
n	

Steps



No. of steps	No. of blocks
1	1
2	4
3	
4	
5	
20	
n	