Problem 1 – Simulation – Experimental Probability

Mikel, a calico cat, is expecting kittens. Calico coloring is limited to females only. Help determine the probability of having five female calico cats. You and your partner will flip a coin 5 times for 50 trials where a head represents a female and a tail represents a male.

1. The calculator can very quickly (and quietly) flip coins for you. Press PRGM and choose **COINFLIP**. Select option **1:SIMULATION**. Enter the number of flips, **5**, and press ENTER. Record your results of 50 trials in the table.

	Tally of Results	**Total**
5 Females		
4 Females		
3 Females		
2 Females		
1 Female		
0 Females		

2. Which outcomes seem to be occurring most often? Why do you think this is happening? _____

_____

3. Which outcomes seem to be occurring least often? Why do you think this is happening? _____

_____

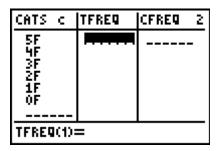**4.** According to the experiment above, what is the probability that Mikel will have all female kittens? _____

Problem 2 – The Class Data

5. Enter the class data below.

	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	**Total**
5F																
4F																
3F																
2F																
1F																
0F																

6. Press ENTER and choose **2:ENTER DATA**. This will set up lists **CATS**, **TFREQ**, and **CFREQ**. Press LIST. Enter the data gathered by the team, TFREQ, and by the class, CFREQ.

```
CATS  c │TFREQ │CFREQ  2
  5F    │▄▄▄▄▄▄│──────
  4F    │      │
  3F    │      │
  2F    │      │
  1F    │      │
  0F    │      │
 ──────│      │
TFREQ(1)=
```

7. Find the probability of Mikel having all female kittens using the class data.

_____

8. How does this probability compare to the probability in Question 4?

_____

_____

9. Which outcome(s) occurred the most using the class data?

_____

_____

Problem 3 – Creating Bar Graphs

10. Create bar graphs of the data. Set up **Plot 1** as shown at the right. Set up **Plot 2** using **CFREQ** as the **DataList1**.

Draw your bar graphs at the right.

11. What do the bar graphs show? How are they similar? How are they different? _____

_____

_____

_____

_____

```
Plot1  On  Off
Type: ⊿  ⟋  ᚷᚷ  ⊞
      ⊘  ᎁᎁ  ⊡⊷  ⊡⋯
CategList:CATS
DataList1:TFREQ
DataList2:L₃
DataList3:L₄
Vert  Hor    1  2  3
```

Problem 4 – Theoretical Probability

12. Next, you will find all the possible combinations of kittens. Complete the table below.

5 Females __ Outcomes	4 Females __ Outcomes	3 Females __ Outcomes	2 Females __ Outcomes	1 Female __ Outcomes	0 Females __ Outcomes
FFFFF	MFFFF FMFFF FFMFF				

13. How many total outcomes are shown in the table? _____

14. Determine the theoretical probability of each event occurring. Complete the table. Enter the probabilities in the list called **PROB**.

Kitten Families	Probability as a Fraction
5 females	
4 females	
3 females	
2 females	
1 female	
0 females	

15. Multiply **PROB** by 1,000 and store in **PRED**. Create a bar graph (**Plot 3**) of the class data (**CFREQ**) and the predicted data (**PRED**).

What do you observe about the two graphs? How are they similar?

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_____

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