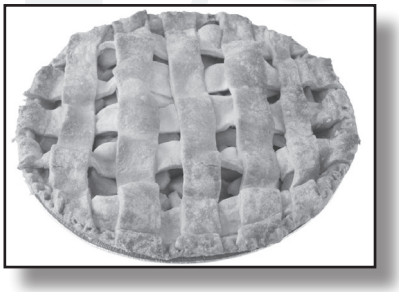
NCTM Process Standards Rubric

Data Analysis & Probability – Drill Sheets

Expectations Instructional programs from pre-kindergarten through grade 12 should enable all students to:	Warm-up 1	Timed Drill 1	Timed Drill 2	Warm-up 2	Timed Drill 3	Timed Drill 4	Warm-up 3	Timed Drill 5	Timed Drill 6	Warm-up 4	Timed Drill 7	Timed Drill 8	Warm-up 5	Timed Drill 9	Warm-up 6	Timed Drill 10	Timed Drill 11	Review A	Review B	Review C
GOAL 1: Problem Solving																				
• build new mathematical knowledge through problem solving;	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• solve problems that arise in mathematics and in other contexts;	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• apply and adapt a variety of appropriate strategies to solve problems;	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	
• monitor and reflect on the process of mathematical problem solving.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GOAL 2: Reasoning & Proof																				
• recognize reasoning and proof as fundamental aspects of mathematics;	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• make and investigate mathematical conjectures;			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• develop and evaluate mathematical arguments and proofs;			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• select and use various types of reasoning and methods of proof.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GOAL 3: Communication																				
• organize and consolidate their mathematical thinking through communication;	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• communicate their mathematical thinking coherently and clearly to peers, teachers, and others;	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• analyze and evaluate the mathematical thinking and strategies of others;	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• use the language of mathematics to express mathematical ideas precisely.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GOAL 4: Connections																				
• recognize and use connections among mathematical ideas;	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• understand how mathematical ideas interconnect and build on one another to produce a coherent whole;	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• recognize and apply mathematics in contexts outside of mathematics.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GOAL 5: Representation																				
• create and use representations to organize, record, and communicate mathematical ideas;	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• select, apply, and translate among mathematical representations to solve problems;	✓	✓		✓	✓	✓		✓	✓	✓		✓	✓		✓	✓			✓	✓
• use representations to model and interpret physical, social, and mathematical phenomena.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

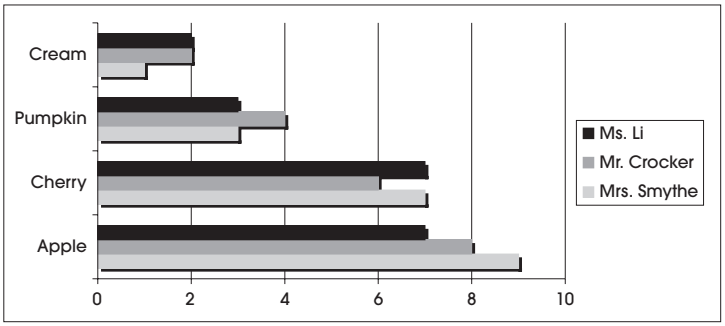
NAME: _____

Warm-Up Drill Sheet # 1



1a) The triple bar chart below shows the results of a survey done with students in three classrooms. The students were asked which pie flavor is their favorite.

Ex: How many students are there in all 3 classes? 59



i) How many students are in Ms. Li's class? _____
ii) How many students are in Mr. Crocker's class? _____
iii) How many students are in Mrs. Smythe's class? _____
iv) How many students in Mrs. Smythe's class like pumpkin pie best? _____
v) How many students in Mr. Crocker's class like cherry pie best? _____
vi) How many students in Ms. Li's class did not select cream pie as a favorite? _____
vii) Which two classes had two students who liked cream pie? _____
viii) How many more students in Mrs. Smythe's class liked apple pie than cherry pie? _____
ix) Three students in Ms. Li's class liked what type of pie? _____
x) How many more students in Mrs. Smythe's class liked apple pie than students who liked apple pie in Ms. Li's class? _____
xi) How many more students in Mr. Crocker's class liked pumpkin pie than cream pie? _____
xii) How many students in Mrs. Smythe's class liked cherry or pumpkin pie? _____
xiii) The same amount of students in what two classrooms liked cherry pie? _____
xiv) The most popular pie in all three classes was what flavor? _____
xv) The least popular pie in all three classes was what flavor? _____
xvi) What was the average number of students who voted for apple pie as their favorite? _____

Reflection

Conduct your own survey in your class about favorite desserts. Make a graph to show your results.

Review Sheet

NAME: _____

Review A

a) The line plot below shows how many students have each number of pets at home.

Mrs. Jones Class Pet Survey

	X							
	X	X						
	X	X	X					
X	X	X	X	X	X			
X	X	X	X	X	X	X		X
0 pets	1 pets	2 pets	3 pets	4 pets	5 pets	6 pets	7 pets	8 pets

i) How many students took this survey? _____

ii) How many students had no pets? _____

iii) How many more students had 1 pet than 2 pets? _____

iv) How many total students had more than 3 pets? _____

v) What is the mode of number of pets? _____

vi) What percent of the students have no pets? _____

vii) What percent of the students have 8 pets? _____

viii) What fraction of students own 2 pets? _____

ix) One-fourth of the students own how many pets? _____

x) The number of students who own four, five, or six pets is equal to the number of students who owns how many pets? _____

xi) Twice as many students own how many pets as own 4 pets? _____

xii) What is the ratio of students who own 3 pets to students who own 6 pets? _____

xiii) How many total pets does this class have? _____

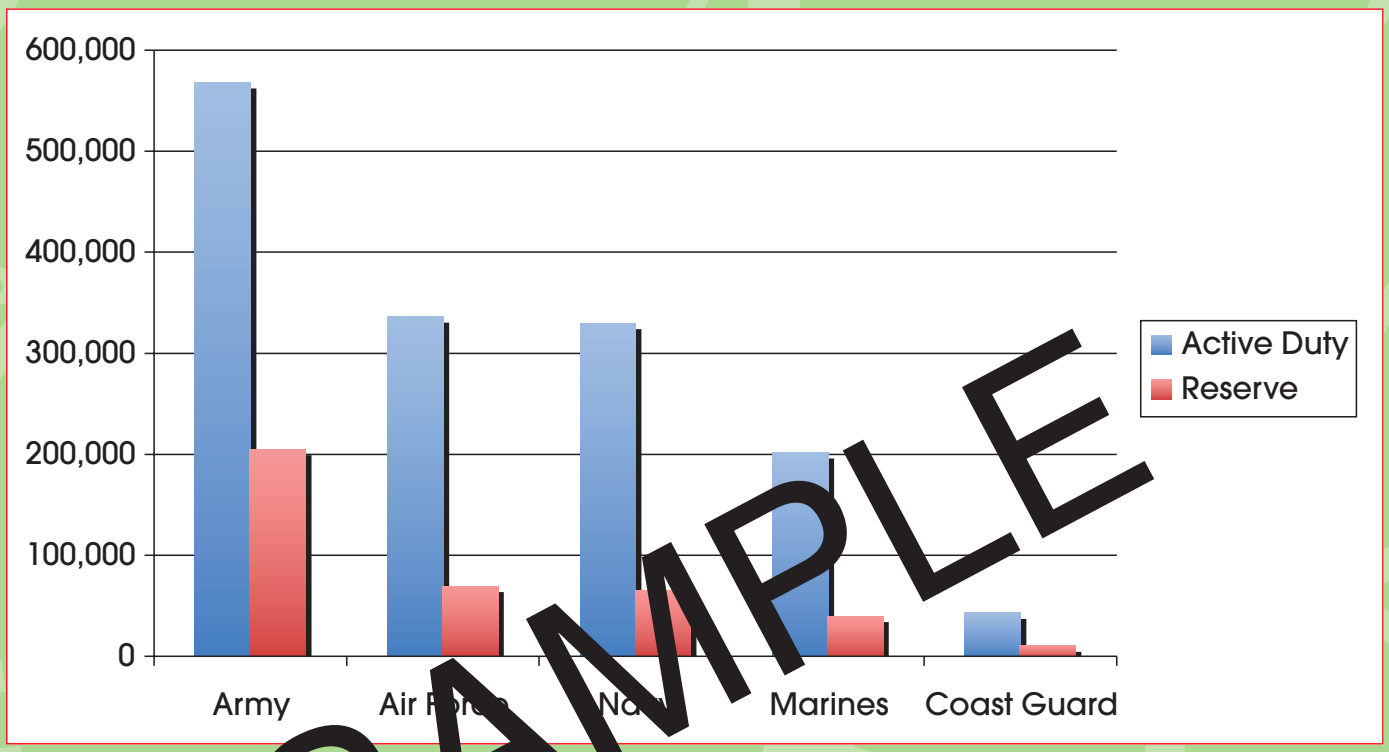
xiv) What fraction of the total pets are owned by people who own 3 pets? _____

xv) What fraction of the total pets are owned by people who own 6 pets? _____

xvi) What is the average number of pets people had? _____

Ordering

The graph below shows the size of the U.S. military forces. Working with a partner or in a small group, use this graph to complete the activity.



a) List the armed forces active duty sizes from least to greatest.

_____ _____ _____ _____ _____

b) List the armed forces reserved sizes from least to greatest.

_____ _____ _____ _____ _____

c) List three comparisons that can be drawn between the armed forces.

_____ _____ _____

d) List four conclusions that can be drawn from this data.

_____ _____ _____ _____