

SkyMath

End of Unit

Assessment

Part 1

Student's
Name _____

Grade _____ Gender: (circle one) F M

School _____

City _____

Teacher _____

Date _____

Beginning Time _____ Ending Time _____

Fahrenheit Thermometer

1. a. Record the following temperatures on the Fahrenheit thermometer provided.

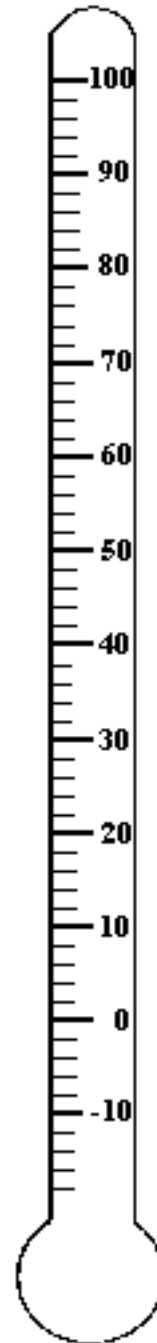
(1) 32° F

(2) -4° F

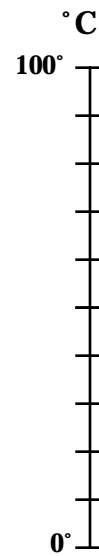
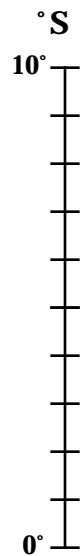
b. Convert the temperatures you recorded to degrees Celsius. Explain how you arrived at your solution.

(1) 32° Fahrenheit = ___ degrees Celsius.

(2) -4° Fahrenheit = ___ degrees Celsius.



2. Compare the SkyMath and Celsius temperature scales below.



a. What does each line (or tick mark) in the $^{\circ}\text{C}$ temperature scale represent? Show your work.

b. Give a rule that would convert SkyMath temperatures to Celsius temperatures. Show your work.

3. Solve the following temperature problems.

a. The record high temperature for the United States, 134° F, was set in Death Valley, California, on July 10, 1913. The record low temperature for the United States, -80° F, was set in Prospect Creek Camp, Alaska, on January 23, 1971. What is the difference between these two record temperatures?

b. At noon on December 24, 1924, the temperature was 63° F in Fairfield, Montana. By midnight, the temperature had dropped 84 degrees. What was the temperature at midnight?

c. (1) On December 25, 1995, the highest temperature in the United States was 86° F, in Honolulu, Hawaii. The lowest temperature was -22° F, in West Yellowstone, Montana. How much warmer was it in Honolulu than in West Yellowstone?

(2) A student from Spain, where temperature is measured in degrees Celsius, is planning a December visit to Yellowstone Park near West Yellowstone, Montana. She is considering swimming outdoors and does not know what -22° F is like. Give her an estimate of this temperature in $^{\circ}$ C. What would you tell her about going swimming in this temperature?

4. At 10:00 A.M. on a school day, 9 students in a science class took temperature readings in their classroom using a Fahrenheit thermometer. The temperatures they recorded are displayed below.

125 67 65 68 62 69 62 64 66

a. What is the maximum temperature?

What is the minimum temperature?

What is the range of temperatures?

b. Calculate the mean, median, and mode of the students' temperature data.

c. What do you think could explain the large range of temperatures gathered by the students?

d. Which of these measures of central tendency (mean, median, or mode) best represents the typical temperature in this classroom at 10:00 A.M.? Why?

5. The data below give the weights of some grizzly bears and black bears living in the Rocky Mountains in Montana.

Grizzly bears

Black bears

Bob	Male	220 lbs.	Blackberry	Female	230 lbs.
Rocky	Male	170 lbs.	Greta	Female	150 lbs.
Sue	Female	210 lbs.	Freddie	Male	140 lbs.
Linda	Female	330 lbs.	Harry	Male	230 lbs.
Wilma	Female	190 lbs.	Ken	Male	170 lbs.
Ed	Male	180 lbs.	Hilda	Female	220 lbs.
Glenda	Female	290 lbs.	Grumpy	Male	160 lbs.
Bill	Male	230 lbs.	Blackfoot	Female	150 lbs.
			Marcy	Female	170 lbs.
			Grempod	Male	200 lbs.

a. Organize these data in a way that would help you find which kind of bear is heavier - grizzly bears or black bears. (You can use another piece of paper to do this if you need to. Please be sure to show all of your work and put your name on it.)

b. Write down three things that you can tell about the weights of the bears. (You may use your answer from question 1 to help you)

c. Based on these data, how much heavier is a typical bear of one kind than a typical bear of the other kind? _____

How did you figure out your answer?

This question is reprinted with permission from MEASURING UP: PROTOTYPES FOR MATHEMATICS ASSESSMENT. Copyright 1993 by the National Academy of Sciences. Courtesy of the National Academy Press, Washington, D.C.