,HighTemp,WindSpeed,Snowfall

1-Jan,19,8,0

2-Jan,23,11,0.2

3-Jan,25,9,0

4-Jan,33,14,7.6

5-Jan,38,7,0

6-Jan,34,6,2.1

7-Jan,35,12,0

8-Jan,27,15,0

9-Jan,28,11,3.3

10-Jan,30,17,1.4

11-Jan,36,13,0

12-Jan,44,9,0

13-Jan,41,8,0

14-Jan,34,14,0

15-Jan,31,15,0

16-Jan,32,12,2.8

17-Jan,35,18,0

18-Jan,20,22,0

19-Jan,17,24,0

20-Jan,16,20,0.6

21-Jan,19,8,0

22-Jan,25,9,0

23-Jan,28,13,14.9

24-Jan,23,11,0

25-Jan,28,32,0

26-Jan,33,13,0

27-Jan,31,15,3.7

28-Jan,39,10,0

29-Jan,36,4,0

30-Jan,33,8,0.9

31-Jan,37,10,0

1 list the five-number summary and the standard deviation of the daily high temperatures below. Your answer is to include both the R code and the output.

2 determine the mode of the wind speed data. Give both the pertinent R code and the output below

3 reate a line plot for the high temperatures. Copy both the R code and the graph, and paste both in the space below.

4 In R, create a function to calculate wind chill. The formula for wind chill is

𝑇𝑇 = 35.74 + 0.6215𝑇𝑇 − 35.75𝑣𝑣0.16 + 0.4275𝑇𝑇 𝑣𝑣0.16 𝑤𝑤𝑤𝑤 𝑎𝑎 𝑎𝑎

Here, 𝑇𝑇𝑤𝑤𝑤𝑤 is the wind chill temperature, 𝑇𝑇𝑎𝑎 is the air temperature, and 𝑣𝑣 is the wind speed. Produce your R code below.

5 Use the wind chill code you developed for Problem 4 to find the wind chill values for all 31 days listed in January, and use this vector of values to create a wind chill column in your data frame. The wind chill values are to be rounded to the nearest tenth. Present your R code below. Also, using R, produce a five-number summary and the standard deviation of the wind chill.

6 Use R to create a histogram for the snowfall amounts. Your histogram bars are to be red, with black borders; the 𝑥𝑥-values are to go from 0 to 15; the 𝑦𝑦-values are to go from 0 to 20; and the number of breaks will be 29 (thus, the width of each bar corresponds to one-half inch of snow). Produce the R code and a copy of the histogram generated by R below. Note that the snowfall distribution does not correspond to a normal distribution. Why do you think that’s so? Speculate. (There is no one “right” answer here: I’m appealing to your intuition.)

[7] At the end of January, you decide that you will go for a half-hour walk each day for which the wind chill value is no less than 22 degrees Fahrenheit, and for which the wind speed is no greater than 13 miles per hour. Develop R code that lets you determine, under the conditions stated above, how many days you could have gone for a 30-minute walk in January. What is that value? Give the R code below.