

1. The prices in \$1,000 for a sample of 14 randomly selected houses are:

225 280 165 452 195 250 225 260 300 200 375 382 190 225

a) Find the standard deviation. Hint: Use 1-Var Stats on your calculator.

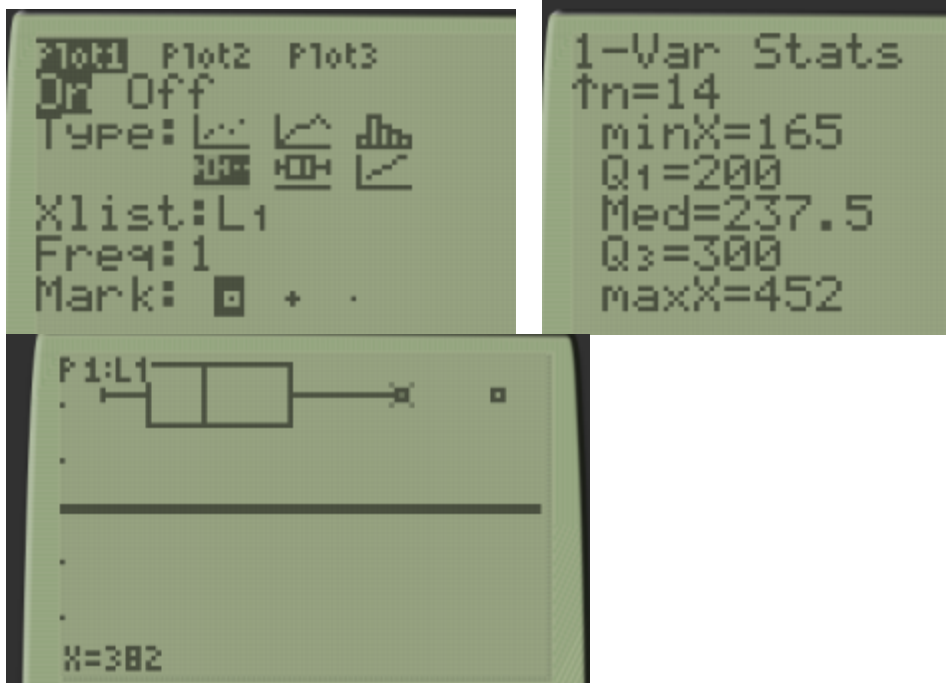
First find the mean $\bar{x} = \frac{\Sigma x}{n} = \frac{3724}{14} = 266$. Then find

$$s = \frac{\Sigma(x - \bar{x})^2}{n - 1} = \frac{(225 - 266)^2 + (280 - 266)^2 + \dots + (225 - 266)^2}{13} = 84.1217$$

Or use s_x on calculator

$s = 84.1217$

b) Draw a modified box and whisker plot using your calculator for reference.

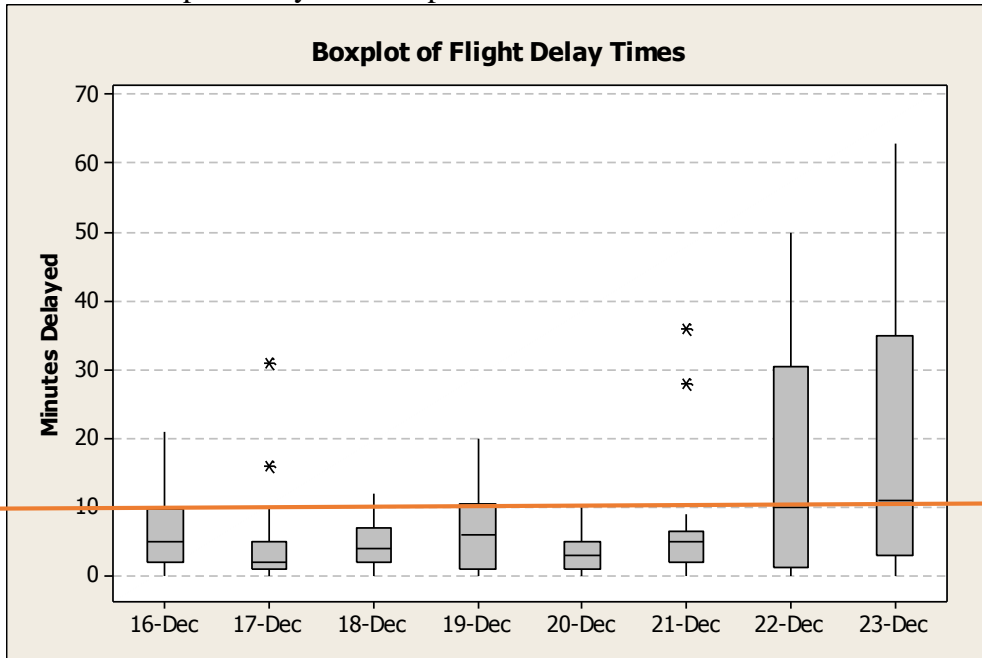


2. The number of stories in two samples of tall buildings in Atlanta and Philadelphia are shown in the stem-and-leaf plot below. Find the smallest value and largest value and medians for the two cities and write a sentence comparing the building heights.

| Atlanta | | Philadelphia |
|---------------------|---|-------------------------------|
| | 2 | 5 |
| 9 8 6 | 3 | 0 0 0 0 2 2 3 4 6 6 6 8 8 9 9 |
| 8 6 4 4 2 2 2 2 2 1 | 4 | 0 0 0 0 |
| 7 4 4 0 0 | 5 | 0 3 4 8 |
| 5 3 2 2 0 0 | 6 | 1 |
| 3 0 | 7 | |
| 0 | | |

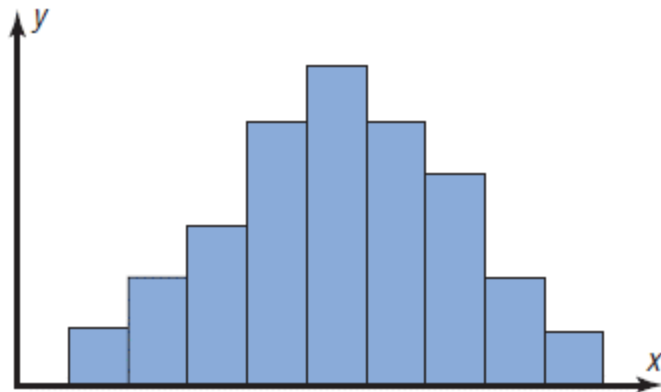
Atlanta has $n = 27$, so the middle number would be the 14th value, median = 40, with a range of $70 - 26 = 44$. Philadelphia has $n = 25$, so the middle number would be the 13th value, median = 38, with a range of $61 - 25 = 36$. The Atlanta has a larger range and median, so in general we can see that the building heights in Atlanta seem to be taller than those in Philadelphia.

3. A student is flying home to see their family over winter break. Her dad cannot take very much time off work to pick her up from the airport. He says that if her flight is delayed by more than 10 minutes she will have to take the bus home. The following are modified box and whisker plots for a sample of flights and their delay time in minutes. Which day should she fly home if she wants to make sure she doesn't have to take a bus home? Explain why in a complete sentence.

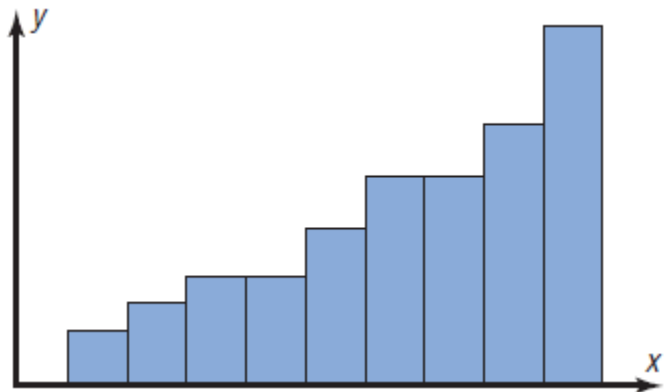


The best day would be December 20th since that is the only boxplot that has all the flights coming in under 10 minutes.

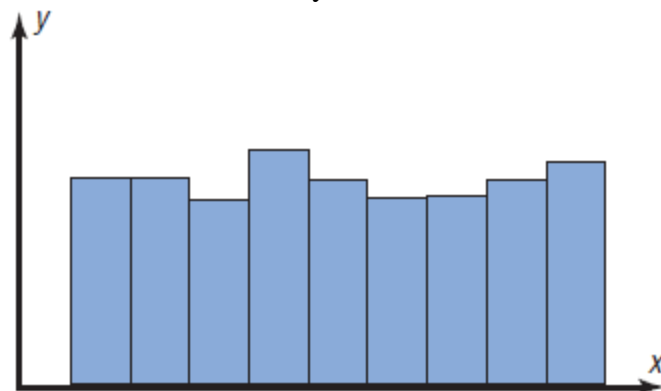
4. Identify the approximate shape of the following distributions as symmetric, skewed right or left.



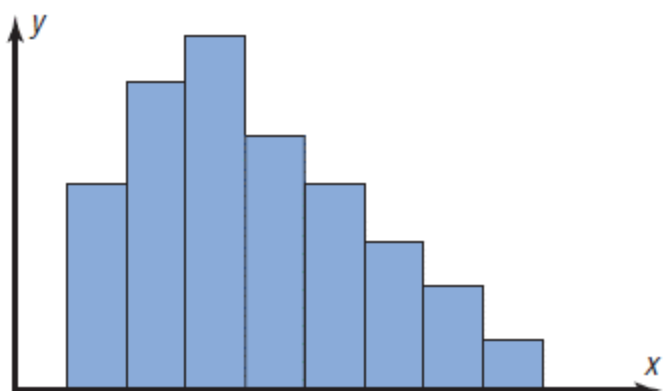
Symmetric



Skewed to the left

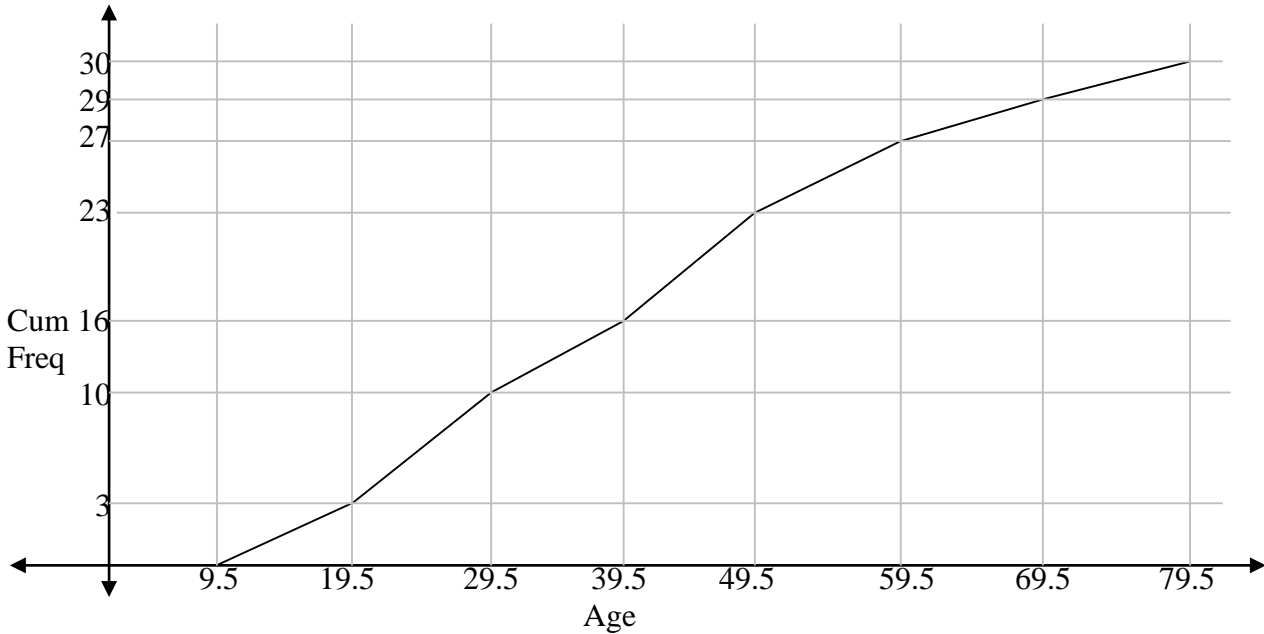


Symmetric



Skewed to the right

5. A sample of 30 ages were selected and the following ogive was constructed.



a) Fill out the following summary table using the ogive above.

| Class Boundary | Class | Frequency | Relative Frequency | Cumulative Frequency | Cumulative Relative Freq. |
|----------------|---------|-----------|--------------------|----------------------|---------------------------|
| 9.5 – 19.5 | 10 – 19 | 3 | 0.1 | 3 | 0.1 |
| 19.5 – 29.5 | 20 – 29 | 7 | 0.2333 | 10 | 0.3333 |
| 29.5 – 39.5 | 30 – 39 | 6 | 0.2 | 16 | 0.5333 |
| 39.5 – 49.5 | 40 – 49 | 7 | 0.2333 | 23 | 0.7667 |
| 49.5 – 59.5 | 50 – 59 | 4 | 0.1333 | 27 | 0.9 |
| 59.5 – 69.5 | 60 – 69 | 2 | 0.0667 | 29 | 0.9667 |
| 69.5 – 79.5 | 70 – 79 | 1 | 0.0333 | 30 | 1 |

b) Make a histogram using the table above.

