

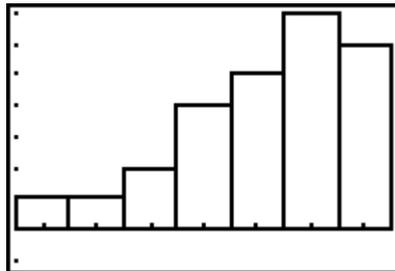
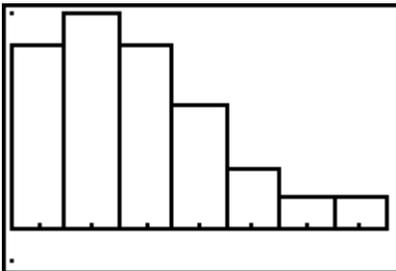
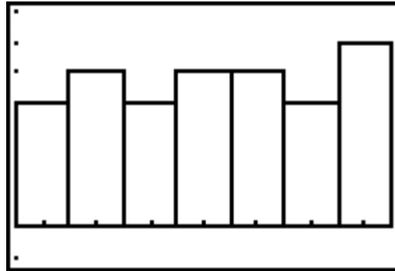
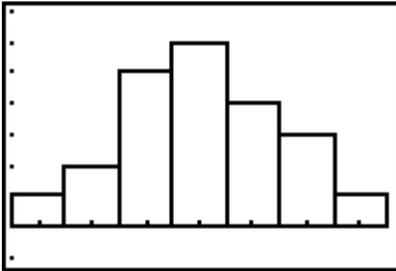


With a large number of observations, the overall pattern of the data may be so regular that it can be described by a *smooth* curve. A smooth curve describes an idealized situation and ignores irregularities as well as outliers.

A *density curve* is a special smooth curve which has two properties.

- Always on or above the horizontal axis.
- The area underneath it is 1.

1. Sketch a density curve that fit each of these histograms.



- For each distribution above, put your pencil on the horizontal axis where you estimate the mean is. Draw and label a vertical line at this point.
- For each distribution above, put your pencil on the horizontal axis where you estimate the median is. Draw and label a *dotted* vertical line at this point.

Press **STAT** **ENTER** and then enter the data at the right into lists L1 – L5.

L1	L2	L3	1
7	1	7	
6	2	6	
5	3	5	
4	4	4	
3	5	3	
2	6	2	
1	7	1	
1			

L4()=1

L4	L5	L6	4
6	1	-----	
7	2		
6	3		
5	4		
4	5		
3	6		
2	7		
1			
1			

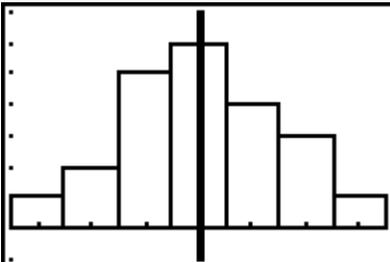
L4()=6

Density Curves

Adjust the window settings as shown below. Graph each of the four histograms by setting each Xlist as **L1** and then Freq as **L2 through L5**, respectively.

<pre> WINDOW Xmin=.5 Xmax=7.5 Xscl=1 Ymin=-1 Ymax=7 Yscl=1 Xres=1 </pre>	<pre> Plot1 Plot2 Plot3 Off Off Type: L1 L2 L3 Freq: L1 L2 L3 Xlist:L1 Freq:L2 </pre>
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For each histogram, find and plot the mean and median using these commands:

<pre> NAMES OPS 1:min(2:max(3:mean(4:median(5:sum(6:Prod(7:stdDev(</pre>	<pre> mean(L1,L2) 4.045454545 Vertical Ans median(L1,L2) 4 Vertical Ans </pre>	
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Press **2nd** **PRGM**, and select **CirDraw** after finding the mean and median for a distribution.

4. Compare the mean and the median in the distributions. Write a sentence describing where these values lie for each type of distribution.

Symmetric:

Skewed right:

Skewed left: