TOPIC: HISTOGRAMS

Intro to Histograms

◆ Recall: Histograms use vertical bars to graph frequencies across different classes, i.e. _____.

► **Classes/Bins** go on the **[HORIZ. | VERTICAL]** axis, usually written as class midpoints: $\left(\frac{lower + upper}{2}\right)$.

► **Frequencies** go on the **[HORIZ. | VERTICAL]** axis with adjacent equally-spaced bars.

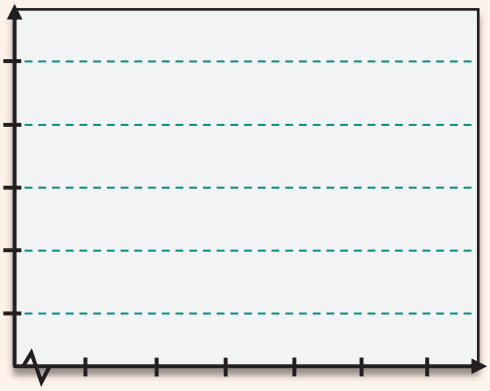
EXAMPLE Create a histogram of the following data. Is the distribution normal, skewed, uniform, or none of these?

Time spent studying (mins) for exam									
20	30	35	40	40	45	50	55	65	75

Recall Frequency Distribution

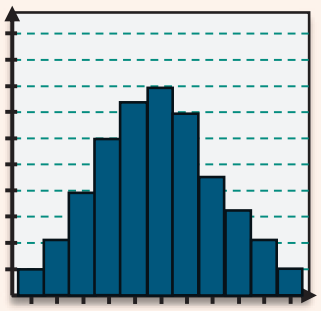
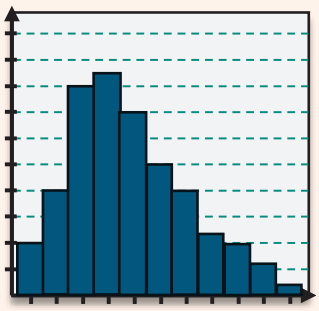
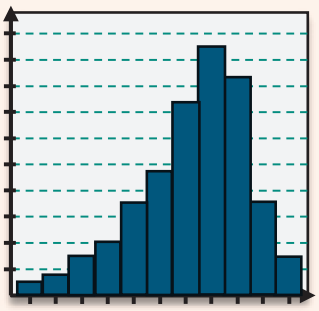
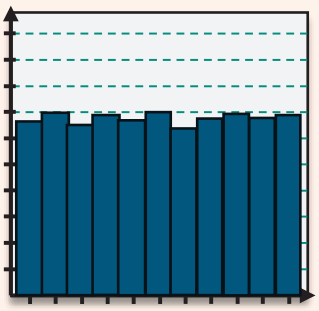
Time spent studying (mins)	Class Midpoint	Frequency (f)
20 – 29	24.5	1
30 – 39	34.5	2
40 – 49	44.5	4
50 – 59	54.5	3
60 – 69	64.5	2
70 – 79	74.5	1

New Histogram



(A) Normal **(B)** Skewed Right **(C)** Skewed Left **(D)** Uniform **(E)** None

◆ Recall: Histograms use vertical bars to graph frequencies across different classes, i.e. _____.

Normal	Skewed Right	Skewed Left	Uniform
			
Bell-shaped or _____ *(Example: Test scores)*	Data peaks ***LEFT***, trails ***RIGHT*** *(Example: Annual incomes)*	Data peaks ***RIGHT***, trails ***LEFT*** *(Example: Life expectancy)*	Classes have _____ freq. *(Example: Dice roll)*

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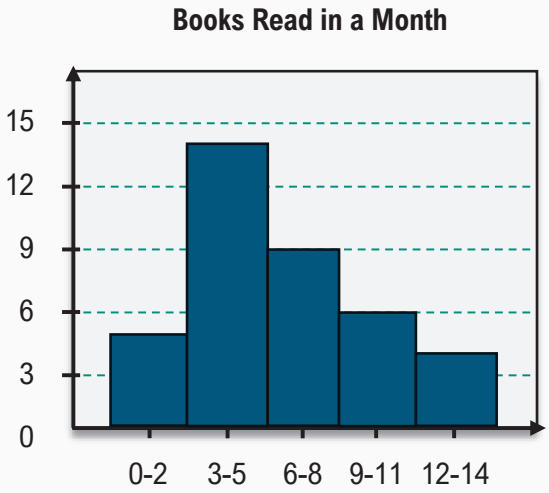
PRACTICE Use the frequency histogram below to determine **(a)** the number of classes and **(b)** the class width.



TOPIC: HISTOGRAMS

How to Create Histograms – TI-84 Calculator

◆ Follow the steps below to quickly create a histogram on a graphing calculator.

EXAMPLE Use a graphing calculator to create a histogram of the following data. Use a class width of 15. Is the distribution normal, skewed, uniform, or none of these?

Time spent studying (mins) for exam									
49	25	55	115	40	5	72	9	68	28
45	57	63	53	33	42	37	12	95	21

(A) Normal **(B)** Skewed Right **(C)** Skewed Left **(D)** Uniform **(E)** None

HOW TO: Create Histograms on TI-84

1) Input data as list L_1

a) STAT, Edit... , then type each # ENTER

2) Graph the default histogram

a) Open STAT PLOT with 2ND, Y=

b) Select ON, bar chart, set Xlist to L_1

c) ZOOM, ZoomStat (or 9), then GRAPH

d) TRACE, < & > show class boundaries & freq.

3) Adjust class boundaries & class widths in WINDOW:

a) Set **Xscl** to desired class width

b) Set **Xmin** / **Xmax** to # at or near data min / max

c) *(Optional)* adjust **Ymin/Ymax/Yscl** values