TOPIC: MEDIAN

Finding the Median

◆ Recall: Measures of Center (like mean) *summarize* a data set in ONE central value. The median is another M.O.C.

► To find the **median**, sort the data from *smallest* to *largest*, then find the _____ number.

EXAMPLE Find the median of each set of numbers.

$(\boldsymbol{A})$ $\{5, 10, 14, 12, 3\}$

n = ____ **[ODD | EVEN]**

Median = _____ value = ____

$(\boldsymbol{B})$ $\{5, 10, 14, 12, 3, 76\}$

n = ____ **[ODD | EVEN]**

Median = _____ of 2 middle #s = ____

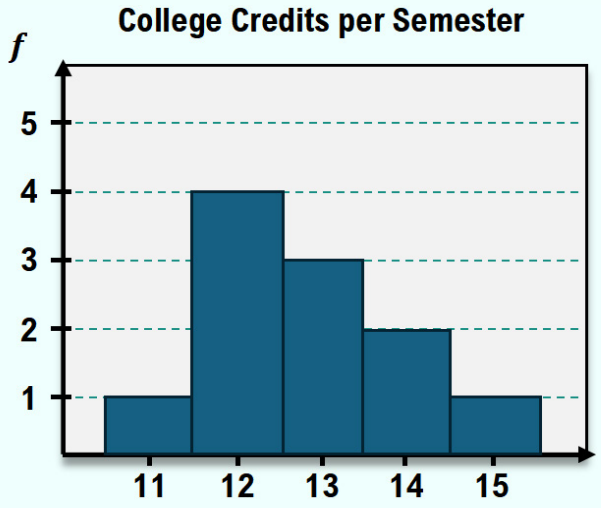
PRACTICE Find the median of the sample data below.

Ages of students in a college class								
26	33	31	22	20	19	21	18	25

TOPIC: MEDIAN

EXAMPLE

The histogram below shows the number of college credits a sample of students are taking in a given semester. Find the median number of credits.



TOPIC: MEDIAN

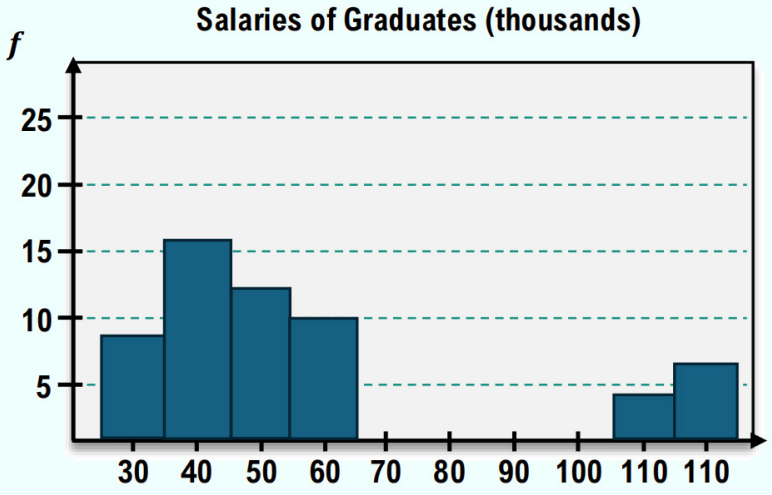
Mean vs Median

◆ Despite mean & median being Measures of Center, they have distinct pros & cons.

EXAMPLE What are the advantages & disadvantages of using mean vs. median in the data sets below?

Mean / "Average"		Median / "Middle"	
$(A)\ \{5, 10, 12, 14, 3\}$	$(B)\ \{5, 10, 12, 14, 3, 76\}$	$(A)\ \{5, 10, 12, 14, 3\}$	$(B)\ \{5, 10, 12, 14, 3, 76\}$
$\frac{5+10+12+14+3}{5}$	$\frac{5+10+12+14+3}{\quad}$	$\{3, 5, \mathbf{10}, 12, 14\}$	$\{3, 5, \mathbf{10}, \mathbf{12}, 14, 76\}$
$= \frac{44}{5} = \mathbf{8.8}$	$\bar{x} = \frac{\sum x}{n}$		
Best: Data is symmetric **[WITH | WITHOUT]** outliers		Best: Data is symmetric **[WITH | WITHOUT]** outliers	
[PRO | CON] Uses _____ value(s) in data set **[PRO | CON]** One *extreme* val. changes mean by ___ *("not resistant")*		**[PRO | CON]** Uses _____ value(s) in data set **[PRO | CON]** One *extreme* val. changes mean by ___ *("resistant")*	

EXAMPLE Without calculating, determine if the mean or median best represents the center of the graphed data.



(A) Mean
(B) Median

TOPIC: MEDIAN

EXAMPLE

The sample below shows the prices (in thousands of US dollars) of 8 homes in a city. Find the mean and median price. Which of the two is more representative of the sample?

Home Prices (Thousands of $)							
275	229	850	240	305	287	310	342