



5-Minute Check

(over Lesson 13-1)

Transparency 13-2

Identify each sample, suggest a population from which it was selected, and state if it is *unbiased* (random) or *biased*. If unbiased, classify the sample as *simple*, *stratified*, or *systematic*. If biased, classify as *convenience* or *voluntary* response.

1. Ten cars are selected from the assembly line of a certain model car every Monday to test for defects in the production.
2. A radio station asks people to call in their requests to be sure the station is playing music its listeners want to hear.
3. **Standardized Test Practice** The student council wants to know which type of fundraiser the student body will support. To obtain accurate results in a survey, which method should they use?
 - (A) Ask the 30 top sellers from the last fundraiser.
 - (B) Place 30 questionnaires in the student council office.
 - (C) Take a survey of 30 students in the cafeteria one morning.
 - (D) Select 30 students' names at random from the enrollment list and ask them.

ANSWERS

1. 10 cars, all cars of one model; biased; convenience
2. listeners who call the station; all listeners of the station; biased; voluntary
3. D

Ch. 13-2 Intro. to MATRICES

A MATRIX is LIKE A SPECIAL KIND OF TABLE. IT HAS CERTAIN PROPERTIES AND VOCABULARY terms.

Ex)
$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

↑ ↑
USE BRACKETS TO IDENTIFY
A MATRIX

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} \begin{matrix} \leftarrow \text{Row 1} \\ \leftarrow \text{Row 2} \end{matrix}$$

↑ ↑ ↑
COLUMN 1 COLUMN 2 COLUMN 3

This is a 2 row by 3 column matrix

So it is a 2 x 3 matrix

"me and my RC"

↑
R

↑
C

"DIMENSIONS ARE 2x3"

Matrices are usually assigned variable names

$$\text{EX) } A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

To refer to each "ELEMENT" of matrix A , use A_{rowcol}

$$\text{EX) } \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{bmatrix}$$

$$\text{so } 4 = a_{21}$$

Since 4 is in Row 2, Column 1

$a_{23} = 6$ is in Row 2, Column 3

$$a_{12} = ?$$

$$a_{22} = ?$$

(3)

NAME THE DIMENSION OF EACH MATRIX. NAME THE POSITION OF EACH CIRCLED ELEMENT

$$\begin{bmatrix} -4 & 2 \\ 0 & 1 \\ \textcircled{3} & -6 \end{bmatrix}$$

3 x 2
 $\textcircled{3}$ is AT 3,1

$$\begin{bmatrix} 2 & 6 & 8 & 5 \\ 1 & 0 & \textcircled{4} & 2 \end{bmatrix}$$

2 x 4
 $\textcircled{4}$ is AT 2,3

$$[11 \textcircled{15} 24]$$

1 x 3
 $\textcircled{15}$ is AT 1,2

IF MATRICES HAVE THE SAME DIMENSIONS, YOU CAN ADD OR SUBTRACT them. The technique is to ADD or subtract the SAME elements from EACH MATRIX.

Ex) $\begin{bmatrix} 2 & 4 & 3 \\ 1 & 5 & 6 \end{bmatrix} + \begin{bmatrix} 8 & 2 & 1 \\ 0 & 5 & 2 \end{bmatrix} = \begin{bmatrix} 10 & 6 & 4 \\ 1 & 10 & 8 \end{bmatrix}$

④

$$A = \begin{bmatrix} 3 & -4 & 7 \\ -1 & 6 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 7 & -4 & -2 \\ 1 & 6 & -3 \end{bmatrix} \quad C = \begin{bmatrix} 3 & 6 \\ -4 & 5 \end{bmatrix}$$

① $A + B = ?$

$$\begin{bmatrix} 10 & -8 & 5 \\ 0 & 12 & -3 \end{bmatrix}$$

② $B + C = ?$

TRICK QUESTION, CAN'T ADD BECAUSE
B is a 2×3 and C is a 2×2 .

MUST BE SAME dimensions TO ADD or
subtract.

———— Example 2 Pg 716 ————

③ $A - B = ?$

$$\begin{bmatrix} -4 & 0 & 9 \\ -2 & 0 & 3 \end{bmatrix}$$

NOTE:

2 matrices ARE EQUAL
if they ARE the same
dimension AND if every
corresponding element in each
matrix is THE SAME.

$$\text{EX)} \begin{bmatrix} 2 & 4 \\ 3 & 1 \end{bmatrix} = \begin{bmatrix} 2 & 4 \\ 3 & 1 \end{bmatrix}$$

$$\text{EX)} \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix} \neq \begin{bmatrix} 2 & 4 \\ 3 & 1 \end{bmatrix}$$

$$\text{EX)} \begin{bmatrix} 2 & 2 \\ 2 & 2 \end{bmatrix} \neq \begin{bmatrix} 2 & 2 & 2 \\ 2 & 2 & 2 \end{bmatrix}$$

You can EASILY multiply A matrix by A number, just make sure you multiply EACH element by the number.

$$\text{EX) } T = \begin{bmatrix} -4 & 2 \\ 0 & 1 \\ 3 & -6 \end{bmatrix}$$

$$3T = ?$$

$$3 \begin{bmatrix} -4 & 2 \\ 0 & 1 \\ 3 & -6 \end{bmatrix} = \begin{bmatrix} -12 & 6 \\ 0 & 3 \\ 9 & -18 \end{bmatrix}$$

Another name for a number is a scalar
so this is called SCALAR MULTIPLICATION

HW: • Read Ch 13-2

• WORKSHEET 13-2 (DUE Friday)