

4-2 Multiplying Matrices

Three students sold T-shirts for a school fund-raiser. Short-sleeve and long-sleeve shirts were available. The table shows the quantities sold by each student.

	Short Sleeve	Long Sleeve
Colin	20	15
Sue	8	6
Lashonda	32	14

1. Create a matrix A for the quantity data. What are the dimensions of the matrix?

2. The table shows the prices for the two types of T-shirts. Create a matrix B for the pricing data. What are the dimensions of the matrix?

	Price (\$)
Short Sleeve	10
Long Sleeve	15

3. Complete this table to show the total revenue that was brought in by each of the students.

	Total Revenue (\$)
Colin	
Sue	
Lashonda	

4. Create a matrix C for the revenue data. What are the dimensions of the matrix?

THINK AND DISCUSS

5. **Explain** how you completed the revenue table.
6. **Describe** how the dimensions of matrix C are related to the dimensions of matrices A and B .

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	Short Sleeve	Long Sleeve
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1. Create a matrix A for the quantity data. What are the dimensions of the matrix?

$$A = \begin{bmatrix} 20 & 15 \\ 8 & 6 \\ 32 & 14 \end{bmatrix}; 3 \times 2$$

2. The table shows the prices for the two types of T-shirts. Create a matrix B for the pricing data. What are the dimensions of the matrix?

	Price (\$)
Short Sleeve	10
Long Sleeve	15

$$B = \begin{bmatrix} 10 \\ 15 \end{bmatrix}; 2 \times 1$$

3. Complete this table to show the total revenue that was brought in by each of the students.
4. Create a matrix C for the revenue data. What are the dimensions of the matrix?

	Total Revenue (\$)
Colin	425
Sue	170
Lashonda	530

$$C = \begin{bmatrix} 425 \\ 170 \\ 530 \end{bmatrix}; 3 \times 1$$

THINK AND DISCUSS

5. **Explain** how you completed the revenue table.
6. **Describe** how the dimensions of matrix C are related to the dimensions of matrices A and B .
5. For each student, take the quantity of short-sleeve shirts multiplied by the price of the short-sleeve shirts and add this to the quantity of long-sleeve shirts multiplied by the price of the long-sleeve shirts.
6. Matrix C has the same number of rows as matrix A and the same number of columns as matrix B .