<div align="center">Pre-Algebra
Second Packet with Online Option</div>

Students and Parents,

I have listed the days and topics in the following chart with both a worksheet and online option. The worksheets will be posted with this on google classroom and it will be available at the middle school office. The online assignments this time are through Clever at clever.com and the online math assignments are through the link to "Woot Math". Video resources for these topics can be found on connected.mcgrawhill.com and there is a link to it through Clever as well. *In case you need to add the book to the connected site, the redemption code for the 8th grade Pre-Algebra book is OGGP-QYC8-KCHQ.*

When you finish a worksheet, you may scan it or send me a picture to my email so I can grade it for you.

Woot Math Class Code: 7LL9NZ and then click to sign in with Google to use your school Gmail account

Choose one option below for each day

Day	Topic from packet	Online Option Log into Clever and select Woot Math or Khan academy	Worksheet Option	Video Link
4/13	Point-Slope Form	*Khan academy: Point-Slope Form*		**I assigned a video in Khan academy to help.**
4/14	Point-Slope Form	*Woot Math: Point-Slope*		
4/15	Congruence and Similarity	*Khan academy: Similarity and Transformations* *There is also a khan academy video assigned for this topic*	Chapter 7: Lesson 3 Reteach	https://youtu.be/XnfZR98f0_M
4/16	Transformations	*Woot Math: "Identifying Transformations"*	Chapter 6: Lesson 1 Reteach	https://youtu.be/EysKS8tQUno
4/17	Transformations	*Woot Math: "Transformations Review"*	Chapter 6: Lesson 4 Skills	https://youtu.be/Kmwdp5Gze8E
4/20	Volume and Surface Area	*Woot Math: "Volume of a Prism"*	Chapter 8: Lesson 1 Reteach	https://youtu.be/9bFL3wB3qy0

4/21	Volume and Surface Area	Woot Math: "Finding the Height and Volume of a Cone"	Chapter 8: Lesson 2 Reteach	https://youtu.be/WUv yvXMh01c
4/22	Volume and Surface Area	Woot Math: "Surface Area"	Chapter 8: Lesson 3 Reteach	https://youtu.be/epO noHeU8Xc
4/23	Volume and Surface Area	Woot Math: "Surface Area and Volume of Rectangular Prisms"	Chapter 8: Lesson 4 Reteach	https://youtu.be/k0hg 5w5XU-Q
4/24	Volume and Surface Area	Woot Math: "Surface Area and Volume"	Chapter 8: Lesson 5 Reteach	https://youtu.be/WUv yvXMh01c
4/27	Volume and Surface Area	Woot Math: "Surface Area and Volume of Solids"	Chapter 8: Lesson 6 Reteach	https://youtu.be/Q4Z 8udj868o
4/28	Volume and Surface Area	Woot Math: "Surface Area and Volume Practice"	Chapter 8: Lesson 1 Skills	https://youtu.be/9bF L3wB3qy0
4/29	Two-Way Tables	Woot Math: "Tech in the Classroom: Two-Way Frequency Tables"	Chapter 9: Lesson 3 Reteach	1.) https://youtu.be/txAH SHZpY4M 2.) I also made a video of examples and posted them to Google Classroom and uploaded to Remind
4/30	Two-Way Tables	Khan academy: Read Two-Way Tables	Chapter 9: Lesson 3 Homework Practice	https://youtu.be/txAH SHZpY4M
5/1	Two-Way Tables	Woot Math: "Frequency Tables in the Classroom(#23)"	Chapter 9: Lesson 3 Skills *See two-way tables video I posted for help	https://youtu.be/txAH SHZpY4M

Lesson 3 Reteach   7-3 Reteach

Similarity and Transformations

Two figures are **similar** if the second can be obtained from the first by a sequence of transformations and dilations. Recall that a dilation changes the size of a figure by a scale factor, but does not change the shape of the figure.
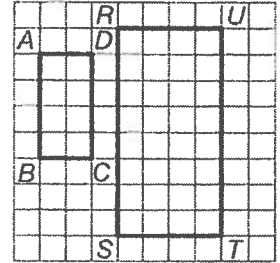
Example 1

Determine if the two figures are similar by using transformations.

Since the orientation of the figures is the same, one of the transformations is a translation.

Write ratios comparing the lengths of the sides.

$\frac{AB}{RS} = \frac{4}{8}$ or $\frac{1}{2}, \frac{BC}{ST} = \frac{2}{4}$ or $\frac{1}{2}, \frac{CD}{TU} = \frac{4}{8}$ or $\frac{1}{2}, \frac{DA}{UR} = \frac{2}{4}$ or $\frac{1}{2}$

Since the ratios are equal, $ABCD$ is the dilated image of $RSTU$. So, the two triangles are similar because a translation and a dilation maps $ABCD$ onto $RSTU$.

Example 2

Determine if the two figures are similar by using transformations.

Since the orientation of the figures is the same, one of the transformations.

$$\frac{AB}{RS} = \frac{3}{7}, \frac{BC}{ST} = \frac{2}{4} \text{ or } \frac{1}{2}$$

The ratios are not equal. So, the two triangles are not similar since a dilation did not occur.
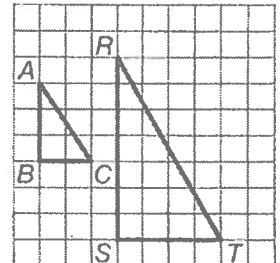
Exercise

1. Determine if the two figures are similar by using transformations.
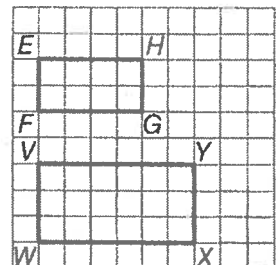
Lesson 1 Reteach

6—1 Reteach

Translations

When a figure is translated, each point is moved the same distance and in the same direction. The translated figure is congruent to the original figure and has the same orientation.

Example

**Draw the image of quadrilateral *ABCD* after a translation 2 units right and 3 units up.**

Step 1   To find the corresponding point for vertex *A*, start at *A* and move 2 units to the right along the horizontal grid line and then move up 3 units along the vertical grid line. Draw a point and label it *A'*. Repeat for each vertex.
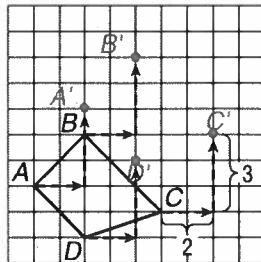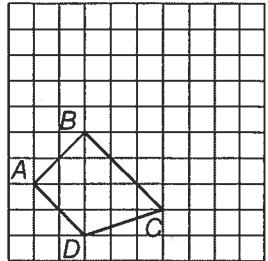
Step 2   Connect the new vertices to form quadrilateral *A'B'C'D'*.
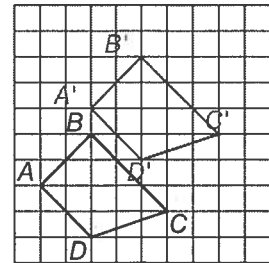
Exercises

Draw the image of the figure after the indicated translation.

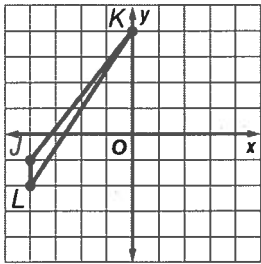**1.** 5 units right and 4 units down

2. 3 units left and 2 units up
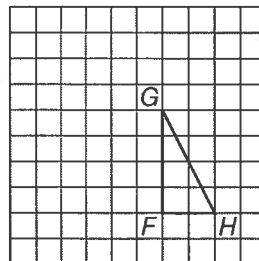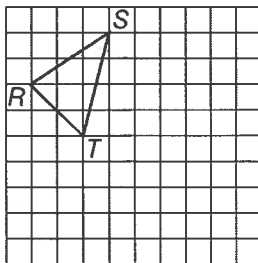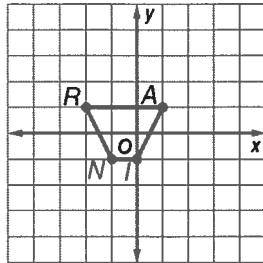
Lesson 4 Skills Practice

6-4 skills

Dilations

Find the coordinates of the vertices of each figure after a dilation with the given scale factor k. Then graph the original image and the dilation.
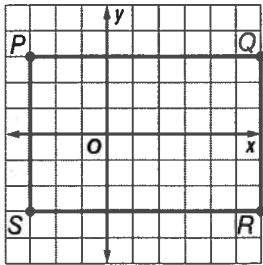
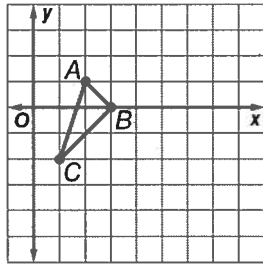**1.** $J(-4, -1), K(0, 4), L(-4, -2); k = \frac{1}{2}$

2. $R(-2, 1), A(1, 1), I(0, -1), N(-1, -1); k = 2$

3. $P(-3, 3), Q(6, 3), R(6, -3), S(-3, -3);$
$k = \frac{1}{3}$

4. $A(2, 1), B(3, 0), C(1, -2); k = 3$

5. PHOTOS Kiesha used a photo that measured 4 inches by 6 inches to make a copy that measured 8 inches by 12 inches. What is the scale factor of the dilation?

6. MODELS David built a model of a regulation basketball court. His model measured approximately 3.75 feet long by 2 feet wide. The dimensions of a regulation court are 94 feet long by 50 feet wide. What is the scale factor David used to build his model?

7. BLUEPRINTS On the blueprints of Mr. Wong's house, his great room measures 4.5 inches by 5 inches. The actual great room measures 18 feet by 20 feet. What is the scale factor of the dilation?
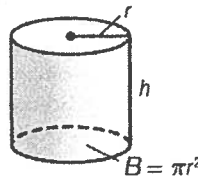
Lesson 1 Reteach

8-1 Reteach

Volume of Cylinders

As with prisms, the area of the base of a **cylinder** tells the number of cubic units in one layer. The height tells how many layers there are in the cylinder. The volume V of a cylinder with radius r is the area of the base B times the height h.

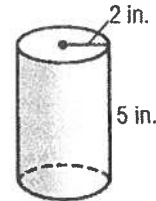$V = Bh$, where $B = \pi r^2$, or $V = \pi r^2 h$

Example

Find the volume of the cylinder. Round to the nearest tenth.

$V \approx \pi r^2 h$ Volume of a cylinder

$V \approx \pi (2)^2(5)$ Replace r with 2 and h with 5.
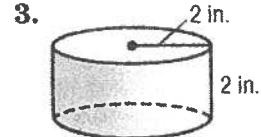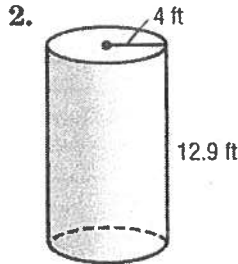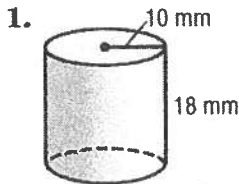
$V \approx 62.8318$ Use a calculator.

The volume is about 62.8 cubic inches.

2 in.

5 in.

Exercises

Find the volume of each cylinder. Round to the nearest tenth.

$V = \pi r^2 h$

1. 10 mm
   18 mm

2. 4 ft
   12.9 ft

3. 2 in.
   2 in.

4. radius = 9.5 yd
   height = 2.2 yd

5. diameter = 6 cm
   height = 11 cm

6. diameter = 3.4 m
   height = 1.25 m

Lesson 2 Reteach
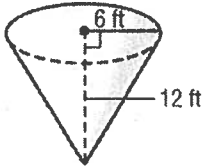## *Volume of Cones*

8-2 Reteach (handwritten)

A **cone** is a three-dimensional shape with one circular base.

The volume V of a cone with radius r is one third the area of the base B times the height h.

$V = \frac{1}{3}Bh$ or $V = \frac{1}{3}\pi r^2 h$ ⬅ (circled, handwritten arrows)

Example

Find the volume of the cone. Round to the nearest tenth.

6 ft
12 ft

$V = \frac{1}{3}\pi r^2 h$ Volume of a cone

$V = \frac{1}{3}(\pi \cdot 6^2 \cdot 12)$ $r = 6$ and $h = 12$

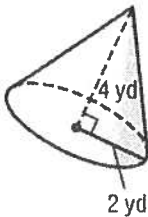$V \approx 452.4$ Simplify.
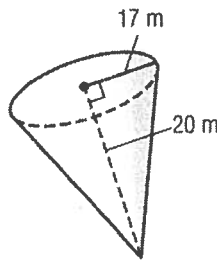
The volume is about 452.4 cubic feet.

Exercises

Find the volume of each cone. Round to the nearest tenth.
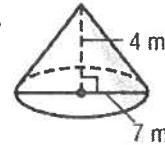
$V = \frac{1}{3}\pi r^2 h$ (handwritten)
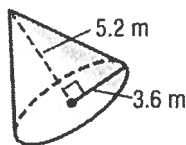
1.
4 yd
2 yd

2.
17 m
20 m

3.
4 m
7 m

4.
5.2 m
3.6 m

5.
9.4 ft
6 ft

6.
6.8 cm
18.7 cm
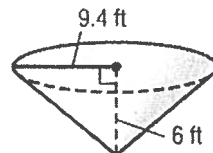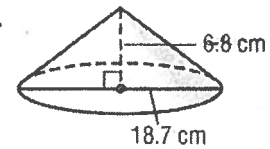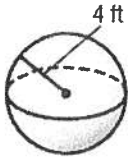
Lesson 3 Reteach

8-3

Volume of Spheres

A **sphere** is a set of all points in space that are a given distance from a given point.

The volume V of a sphere with radius r is four thirds the product of π and the cube of the radius r.

$V = \dfrac{4}{3}\pi r^3.$

Example

Find the volume of the sphere. Round to the nearest tenth.

4 ft

$V = \dfrac{4}{3}\pi r^3$ Volume of a sphere

$V = \dfrac{4}{3}(\pi \cdot 4^3)$ $r = 4$
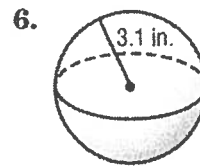
$V \approx 268.1$ Simplify. Use a calculator.
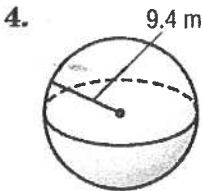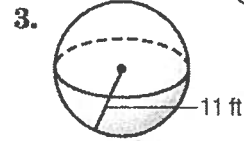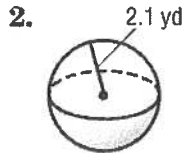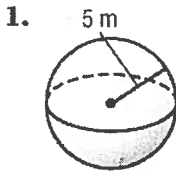
The volume is about 268.1 cubic feet.

Exercises

Find the volume of each sphere. Round to the nearest tenth.

$V = \dfrac{4}{3}\pi r^3$

1. 5 m

2. 2.1 yd

3. 11 ft

4. 9.4 m

5. 50 cm

6. 3.1 in.
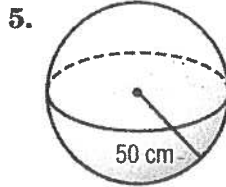
Lesson 4 Reteach

8-4

Surface Area of Cylinders

The surface area *S.A.* of a cylinder with height *h* and radius *r* is the sum of the area of the curved surface and the area of the circular bases.

$S.A. = 2\pi rh + 2\pi r^2$

Example

Find the total surface area of the cylinder. Round to the nearest tenth.

6 m
8 m
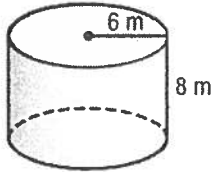
$S.A. = 2\pi rh + 2\pi r^2$ Surface area of a cylinder

$S.A. = 2\pi(6)(8) + 2\pi(6)^2$ Replace *r* with 6 and *h* with 8.

$S.A. \approx 527.7875$ Simplify.

The surface area of the cylinder is about 527.8 square meters.

Exercises

Find the total surface area of each cylinder. Round to the nearest tenth.

$$SA = 2\pi rh + 2\pi r^2$$

1. 2 yd
4 yd

2. 10 in.
36 in.

3. 5 cm   20 cm

4. 10 m
3 m

Lesson 5 Reteach

8-5 (handwritten)

Surface Area of Cones

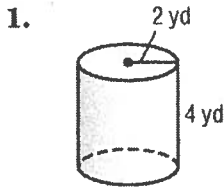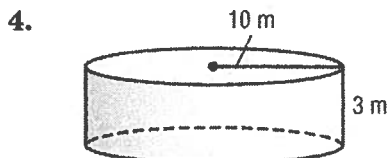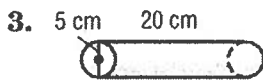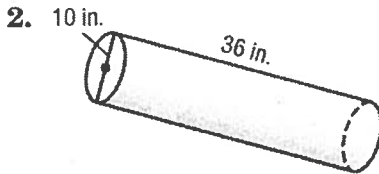The lateral area *L.A.* of a cone is π times the radius times the slant height, or $L.A. = \pi r \ell$. The total surface area of a cone with slant height ℓ and radius r is the lateral area plus the area of the base, or $S.A. = L.A. + \pi r^2$ or $S.A. = \pi r \ell + \pi r^2$.

Example

Find the lateral and total surface areas of the cone.
Round to the nearest tenth.

Lateral Surface Area

$L.A. = \pi r \ell$

$L.A. = \pi \cdot 3 \cdot 5 \quad r = 3, \ell = 5$

$L.A. \approx 47.1$

Total Surface Area

$S.A. = L.A. + \pi r^2$

$S.A. = 47.1 + \pi \cdot 3^2$

$S.A. \approx 75.4$
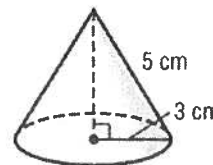
The lateral and total surface areas of the cone are about 47.1 and 75.4 square centimeters.

Exercises

Find the lateral and total surface areas of each cone. Round to the nearest tenth.

$SA = \pi r \ell + \pi r^2$ (handwritten)

1.

10 cm

4 cm
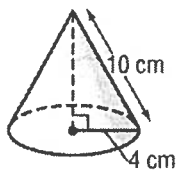
$LA = $ Surface area without base (handwritten)

$\ell = $ slant height (handwritten)

① $LA = \pi \cdot 4 \cdot 10 = $ _____ (handwritten)

$SA = \pi \cdot 4 \cdot 10 + \pi \cdot 4^2 = $ _____ (handwritten)

2.

5.7 ft

4 ft

3.

11.6 ft

7.3 ft

4.

17 m

4 m

Lesson 6 Reteach

8-6
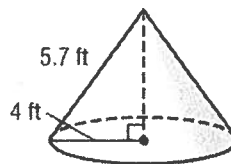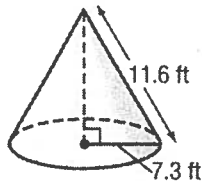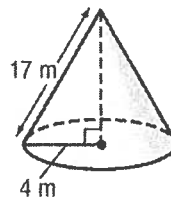
Changes in Dimensions

A **scale factor** is how much larger or smaller one solid is than another. **Similar solids** have the same shape and their corresponding linear measures are proportional.

For similar solids *A* and *B*:

surface area of *B* = (surface area of *A*) × (scale factor)^2 *Squared Scale factor*

Example 1

The surface area of a rectangular prism is 144 square centimeters. Find the surface area of a similar prism that is larger by a scale factor of 4.

$S.A. = 144 \cdot 4^2$ Multiply by the square of the scale factor.

$S.A. = 144 \cdot 16$ Square 4.

$S.A. = 2,304 \text{ cm}^2$ Simplify.

For similar solids *A* and *B*:

Volume of *B* = (volume of *A*) × (scale factor)^3 *Cubed Scale factor*

Example 2

The volume of a rectangular prism is 120 cubic feet. Find the volume of a similar prism that is larger by a scale factor of 2.

$V = 120 \cdot 2^3$ Multiply by the cube of the scale factor.

$V = 120 \cdot 8$ Cube 2.

$V = 960 \text{ ft}^3$ Simplify.

Exercises

1. The surface area of a rectangular prism is 1,150 square inches. Find the surface area of a similar prism that is larger by a scale factor of 2.

2. The surface area of a pyramid is 38 square feet. What is the surface area of a similar pyramid that is smaller by a scale factor of $\frac{1}{3}$? Round to the nearest tenth.

3. The volume of a triangular prism is 5 cubic meters. Find the volume of a similar prism that is larger by a scale factor of 3.

4. The volume of a cylinder is 416 cubic inches. What is the volume of a similar cylinder that is smaller by a scale factor of $\frac{1}{2}$?

Lesson 1 Skills Practice *Review → 8-1*   *See video or reteach page for formula*

Volume of Cylinders

Find the volume of each cylinder. Round to the nearest tenth.

1. 7 cm 20 cm

2. 8 ft 9 ft

3. 12 in. 8 in.

4. $3\frac{1}{2}$ yd 6 yd

5. 5.3 m 8.7 m

6. 1.9 in. 6.2 in.
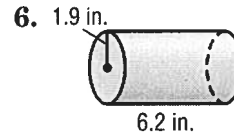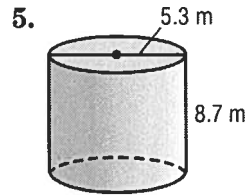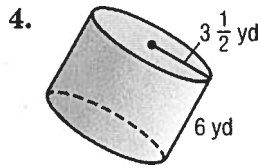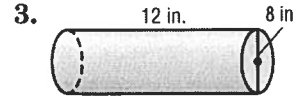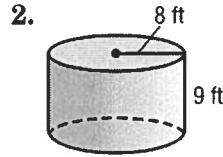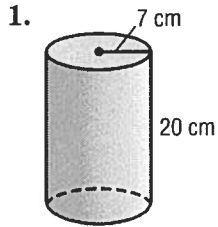
7. radius = 8.8 cm
   height = 4.7 cm

8. radius = 4 ft
   height = $2\frac{1}{2}$ ft

9. diameter = 10 mm
   height = 4 mm

10. diameter = 7.1 in.
   height = 1 in.

11. diameter = 12 ft
   height = 18 ft

12. diameter = $3\frac{1}{2}$ in.
   height = 5 in.

Lesson 3 Reteach

Two-Way Tables

9-3   I posted a video to explain this topic.

Example 1

Marisa surveyed students at her school. She found that 30 out of 75 seventh graders buy their lunch. There are 25 out of 76 eighth graders who do not buy their lunch. Construct a two-way table summarizing the data.

Step 1 Create a table using the two-categories: buy lunch and grade level. Fill in the table with the given values.

Step 2 Use reasoning to complete the table. Remember, the totals are for each row and column. The column labeled "Total" should have the same sum as the row labeled "Total."

	Buy Lunch	Do Not Buy Lunch	Total
Seventh Graders	30	45	75
Eighth Graders	51	25	76
Total	81	70	151

Example 2

Find and interpret the relative frequencies of seventh graders in the survey from Example 1 by row. Round to the nearest hundredth if necessary.

	Buy Lunch	Do Not Buy Lunch	Total
Seventh Graders	$30; \frac{30}{75} = 0.40$	$45; \frac{45}{75} = 0.60$	$75; \frac{75}{75} = 1.00$
Eighth Graders	$51; \frac{51}{76} \approx 0.67$	$25; \frac{25}{76} \approx 0.33$	$76; \frac{76}{76} = 1.00$
Total	81	70	151

Sample answer: Less than half of the seventh graders and more than half of the eighth graders buy their lunch.

Exercise

Find and interpret the relative frequencies of seventh graders in the survey from Example 1 by column. Round to the nearest hundredth if necessary.
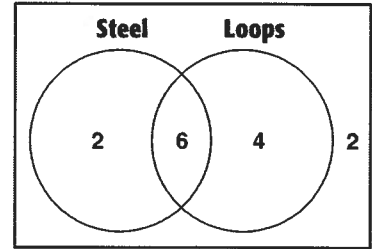
Lesson 3 Homework Practice

9-3

Two-Way Tables

For Exercises 1-6, use the Venn diagram at the right and the information below.

The Venn diagram compares the roller coasters at an amusement park as to whether or not they are made of steel and whether or not they have loops.

Steel		Loops
2	6	4	2

1. Complete the two-way table below.

	Steel	Not Steel	Total
Loops			
No Loops			
Total			

2. How many roller coasters are at the amusement park?

3. Find the relative frequencies from the table in Exercise 1 by row.

	Steel	Not Steel	Total
Loops	$\frac{6}{10} = 0.60$		
No Loops			

4. Interpret the relative frequencies you found in Exercise 3.

5. Find the relative frequencies from the table in Exercise 1 by column. Round to the nearest hundredth if necessary.

	Steel	Not Steel
Loops	$\frac{6}{8} = 0.75$	
No Loops		
Total		

6. Interpret the relative frequencies you found in Exercise 5.

Lesson 3 Skills Practice

Two-Way Tables

9-3

For Exercises 1 and 2, construct a two-way table summarizing each set of data.

1. There are 195 male and 126 female students at McGuffey Junior High. A survey showed that 110 males and 84 females ride the bus.

	Bus	Not Bus	Total
Males			
Females			
Total			

2. The two-way table shows the enrollment in language classes at Carson Middle School. Find and interpret the relative frequencies of students in the survey by row. Round to the nearest hundredth if necessary.

	Spanish	Not Spanish	Total
Chinese	30	65	95
Not Chinese	20	5	25

3. Refer to the table in Exercise 2. Find and interpret the relative frequencies of students in the survey by column. Round to the nearest hundredth if necessary.

	Spanish	Not Spanish
Chinese	30	65
Not Chinese	20	5
Total	50	70