Percent

7

SECTION 7.7

Pie Charts

Objectives

A   Read a pie chart.

B   Construct a pie chart.

**A**   Reading a Pie Chart

Reading a Pie Chart

Some of this introductory material will be reviewed. We want to begin our study of pie charts by reading information from pie charts.

Example 1

The pie chart shows the class rank of the members of a drama club.

Use the pie chart to answer the following questions.

a. Find the total membership of the club.

b. Find the ratio of freshmen to total number of members.

c. Find the ratio of seniors to juniors.
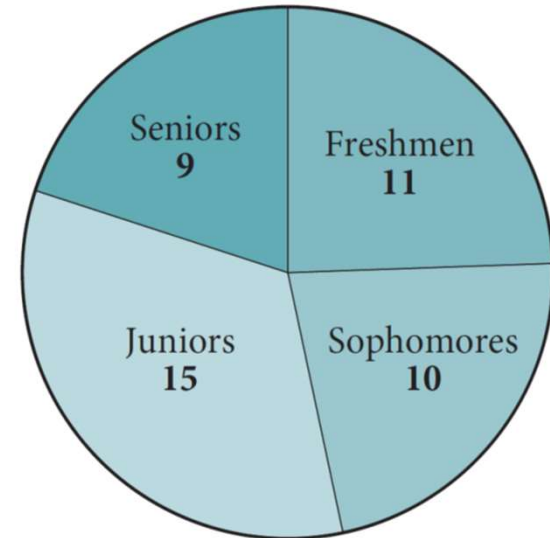
Example 1 – *Solution*

cont'd

a. To find the total membership in the club, we add the numbers in all sections of the pie chart.

$$9 + 11 + 15 + 10 = 45 \text{ members}$$

b. The ratio of freshmen to total members is

$$\frac{\text{Number of freshmen}}{\text{Total number of members}} = \frac{11}{45}$$

c. The ratio of seniors to juniors is

$$\frac{\text{Number of seniors}}{\text{Number of juniors}} = \frac{9}{15} = \frac{3}{5}$$

B Constructing Pie Charts

Example 3

Construct a pie chart that shows the free space and used space for a 1 terabyte (roughly 1,000 GB) hard drive that contains 446 GB of data.

Solution:

Using a Template

As mentioned previously, pie charts are constructed with percents. Therefore we must first convert data to percents.

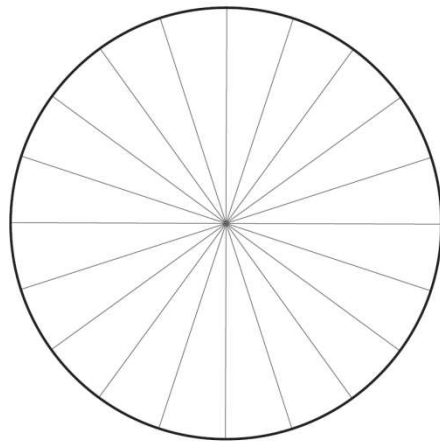To find the percent of used space, we divide the amount of used space by the amount of total space.

We have

$$\frac{446}{1000} = 0.446 \text{ which is } 45\% \text{ to the nearest percent}$$
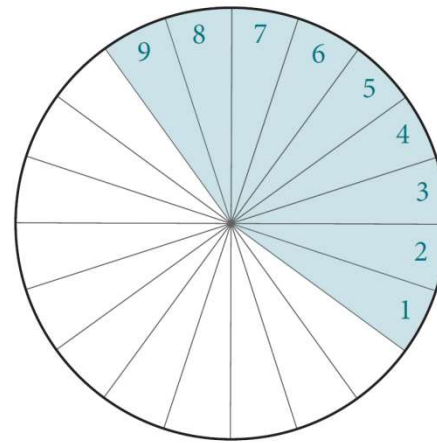
Example 3 – *Solution*

cont'd

The area of each section of the template below is 5% of the area of the whole circle.

Pie Chart Template
Each slice is 5% of the
area of the circle.

Creating a Pie Chart
To shade 45% of the circle,
we shade 9 sections of the template.

If we shade 9 sections of the template, we will have shaded 45% of the area of the whole circle.

Example 3 – *Solution*

cont'd

The shaded area represents 45%, which is the amount of used disk space.

The rest of the circle must represent the 55% free space on the disk.

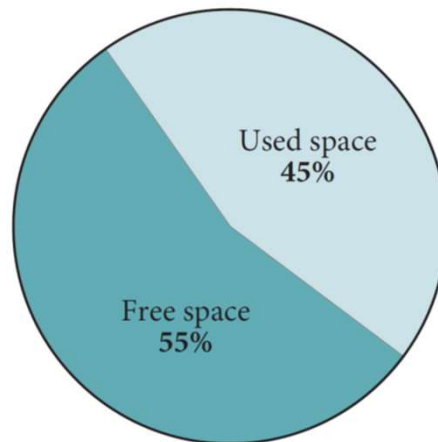Shading each area with a different color and labeling each, we have our pie chart.

Used space
45%

Free space
55%

Figure 1

11

Example 3 – *Solution*

cont'd

Using a Protractor

Since a pie chart is a circle, and a circle contains 360°, we must now convert our data to degrees.

We do this by multiplying our percents in decimal form by 360. We have

$$(0.45)360° = 162°$$

Now we place a protractor on top of a circle.

Example 3 – *Solution*

cont'd

First we draw a line from the center of the circle to 0° as shown in Figure 2.
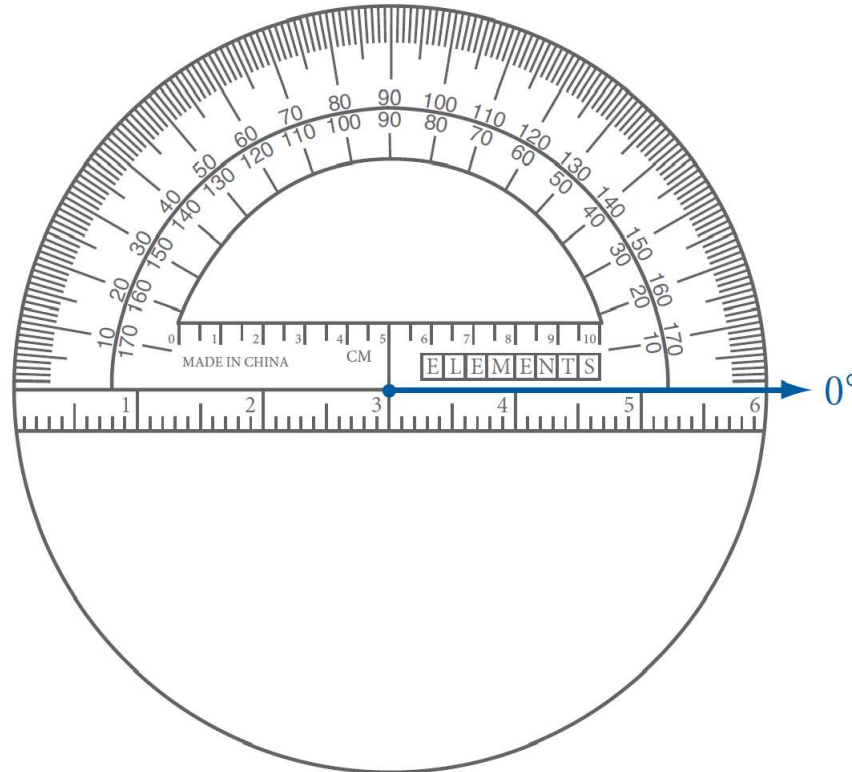

Figure 2

Example 3 – *Solution*

cont'd

Now we measure and mark 162° from our starting point, as shown in Figure 3.
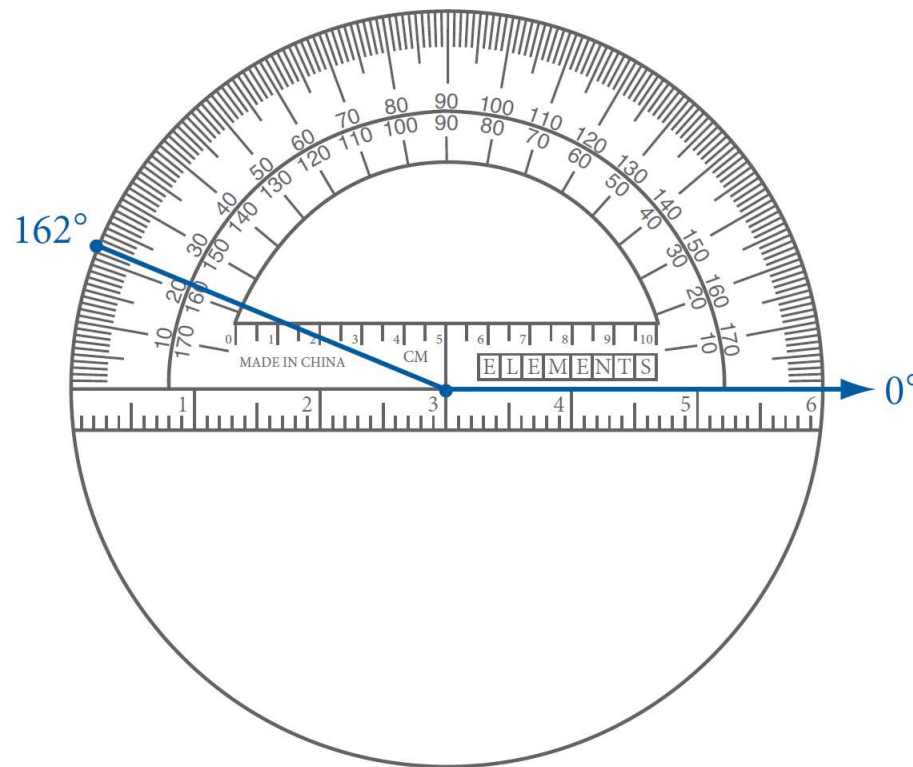

Figure 3

Example 3 – *Solution*

cont'd

Finally we draw a line from the center of the circle to this mark, as shown in Figure 4. Then we shade and label the two regions as shown in Figure 5.
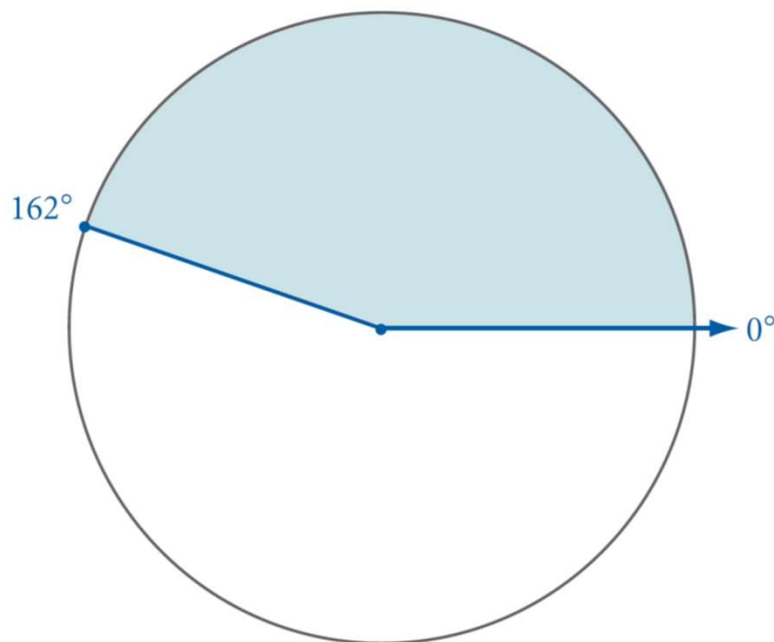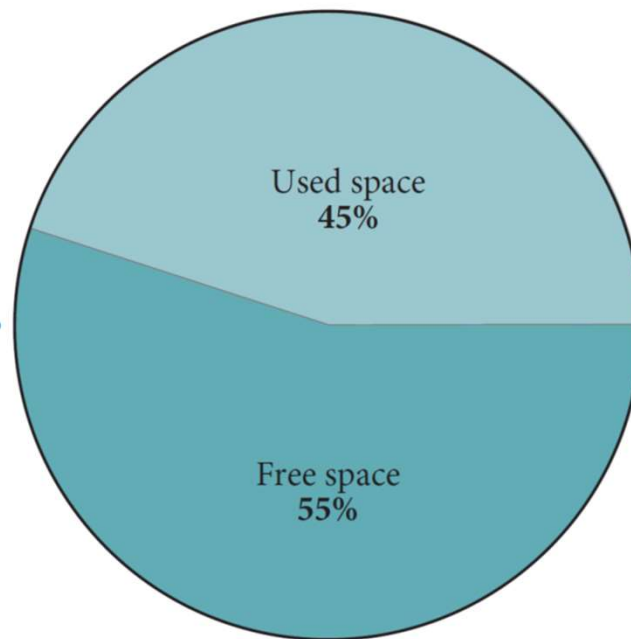

162°

0°

Figure 4

Used space
45%

Free space
55%

Figure 5