**Word Problem Practice**

***Hyperbolas***

***x***

***O***

***y***

0

8

***O***

***x***

20

40

80

***y***

16

8

***O***

**−**8

***x***

8

***y***

16

***x***

16

8

***O***

**−**16

***y***

**Lesson 7-3**

*Glencoe Precalculus*

Chapter 7

**19**

**−**8

**−**4

**c.** Find the eccentricity.

**−**8

4

8

**b.** Write the equations of the asymptotes.

**b.** Graph one hyperbola.

**−**8

**−**16

**a.** Graph the hyperbola.

**b.** If each unit on the coordinate plane

represents 3 feet, what is the narrowest vertical width of the play area?

**b.** Find the locations of the seismographs.

40

**a.** Write an equation that models the

curved sides of the play area.

**a.** Graph the hyperbola.

(3, 4)

**2.** **SHADOWS** A lamp projects light onto a wall in the shape of a hyperbola. The edge of the light can be modeled by $\frac{y^{2}}{196}-\frac{x^{2}}{121}=1$.

**4.** **SHADOWS** The path of the shadow cast by the tip of a sundial is usually a hyperbola.

**a.** Write two equations of the hyperbola in standard form if the center is at the origin, given that the path contains a transverse axis of 24 millimeters with one focus 14 millimeters from the center.

**1.** **EARTHQUAKES** The epicenter of an earthquake lies on a branch of the hyperbola represented by $\frac{(x - 50)^{2}}{1600}-\frac{(y - 35)^{2}}{2500}=1$, where the seismographs are located
at the foci.

**3.** **PARKS** A grassy play area is in the shape of a hyperbola, as shown.

**7-3**

NAME DATE PERIOD



