Chapter 4 **Performance Task** (continued)

Distance and Brightness of the Stars

How far away are the stars? How is the brightness of a star measured? What are the brightest stars in the sky?

1. The star Sirius is more than 4 light years farther from Earth than the star Centauri. Write an inequality that represents the distances of Sirius and Centauri from Earth.

2. Centauri is 4.2 light years from Earth. Write and graph an inequality that represents the distance of Sirius from Earth.

3. An elite space shuttle takes off from Earth heading toward Centauri and travels 1.7 light years. Write and solve an inequality that represents the additional distances the shuttle can travel before getting to the star.

Chapter 4

Performance Task (continued)

Distances and Brightness of the Stars

4. The apparent magnitude of a star is the brightness of the star as observed from Earth. The lesser the number, the brighter the star. The Sun is the brightest star observed from Earth and has an apparent magnitude of –26.72. Write and graph an inequality that represents the apparent magnitudes of other, less bright stars.

5. The 10th brightest star has an apparent magnitude of 0.46. Write and graph an inequality that represents the apparent magnitudes of stars brighter than this star.

6. Using your answers to Exercises 4 and 5, what do you know about the apparent magnitudes of the 10 brightest stars? Include a graph in your answer.