Name

12-9B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 862–865 for objectives.

SKILLS Objective D

In 1 and 2, solve the system by hand for all real solutions.

1. $\begin{cases} xy = 48 \\ x^2 + y^2 = 160 \end{cases}$

2. $\begin{cases} y = d^2 - 6 \\ 2d^2 + y^2 = 27 \end{cases}$

In 3 and 4, a. estimate real solutions to the system by graphing on a graphing utility, and b. find the exact solutions.

3. $\begin{cases} m^2 + 9n^2 = 36 \\ m^2 - 2n^2 = 3 \end{cases}$

a. _____

b. _____

4. $\begin{cases} 4x^2 + y^2 = 40 \\ -4x^2 + y^2 = 8 \end{cases}$

a. _____

b. _____

USES Objective H

4. An architect has designed a rectangular gallery with a floor area of 2352 sq. ft. The architect's clients want the floor area to be 2700 sq. ft, which can be accomplished by adding 3 ft to the width and 4 ft to the length in the original plans. What are the dimensions of the gallery in the original plan?

5. At football games last year, the snack shop took in $1200 in soft-drink sales. This year the price per drink was raised 15¢, 300 fewer drinks were sold, and $1365 was brought in. Find the price of the soft drinks and the number sold

   a. last year. _____

   b. this year. _____

6. Temp-O, which manufactures thermometers, made $876,960 in sales last year. This year Temp-O made $888,096 by raising the price for each thermometer by $0.04 and selling the same number of thermometers.

   a. What was the price of a Temp-O thermometer last year? _____

   b. How many thermometers were sold this year? _____

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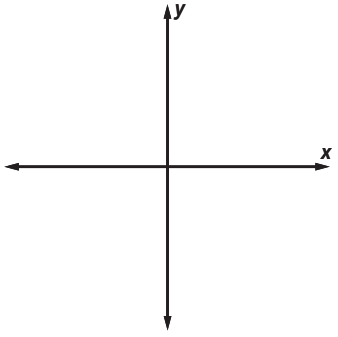
7. Monitoring Station A determines that the center of an earthquake is 40 miles away. Station B, 20 miles west, and 35 miles south of Station A, finds that it is 15 miles from the center. Find all possible locations of the center relative to Station A.

REPRESENTATIONS Objective K

8. Consider the system $\begin{cases} x^2 + y^2 = 16 \\ xy = 8 \end{cases}$

   a. Sketch the system on the axes at the right.

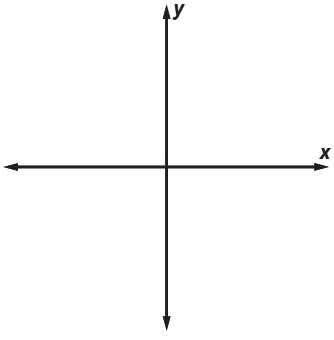
   b. Determine the number of solutions.



9. Consider the system $\begin{cases} x^2 + y^2 = 100 \\ xy = 32 \end{cases}$

   a. Sketch the system on the axes at the right.

   b. Determine the number of solutions.



10. Give an equation for a parabola that intersects the ellipse $\frac{x^2}{9} + \frac{y^2}{4} = 1$ in exactly three points.

11. Give an equation for a hyperbola that intersects the ellipse $\frac{x^2}{9} + \frac{y^2}{16} = 1$ in exactly two points.

12. Give an equation for a circle that intersects the parabola $y = -x^2 + 5$ in exactly three points.

13. Give an equation for a hyperbola that does not intersect the parabola $y = x^2 + 5$.