

EXTRA PRACTICE — Exercises

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Unit IX – The Conic Sections

Part F – Problem Solving With Non-Linear Systems

Lesson 2 – “Geometric Figure” Problems

For the following story problems, answer the four analysis questions to find the non-linear system needed to solve. Then solve and use common sense to check your answer.

1. The area of a rectangle is twelve square inches. The perimeter is twenty-four inches. Find the dimensions of the rectangle.

2. The area of a rectangle is the $\sqrt{3}$ square meters, and the length of a diagonal is two meters. Find the dimensions.

3. The area of a rectangle is 48 square meters. The length of a diagonal is ten meters. Find the perimeter of the rectangle.

4. A garden contains two square flower beds. Find the dimensions of each bed if the sum of their areas is 832 square feet and the difference of their areas is 320 square feet.

5. Find the dimensions of a rectangle with an area of sixty square feet and a diagonal of thirteen feet.

EXTRA PRACTICE — Answer Key

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For the following story problems, answer the four analysis questions to find the non-linear system needed to solve. Then solve and use common sense to check your answer.

1. Length is $6 + 2\sqrt{6}$
Width is $6 - 2\sqrt{6}$

2. Dimensions are $\sqrt{3}$ and 1.

3. Length is 8
Width is 6
Perimeter is 28

4. $x = 24, y = 16$

5. If $l = 12$, then $w = 5$
If $l = 5$, then $w = 12$
Since length is greater than width, $l = 12$ and $w = 5$