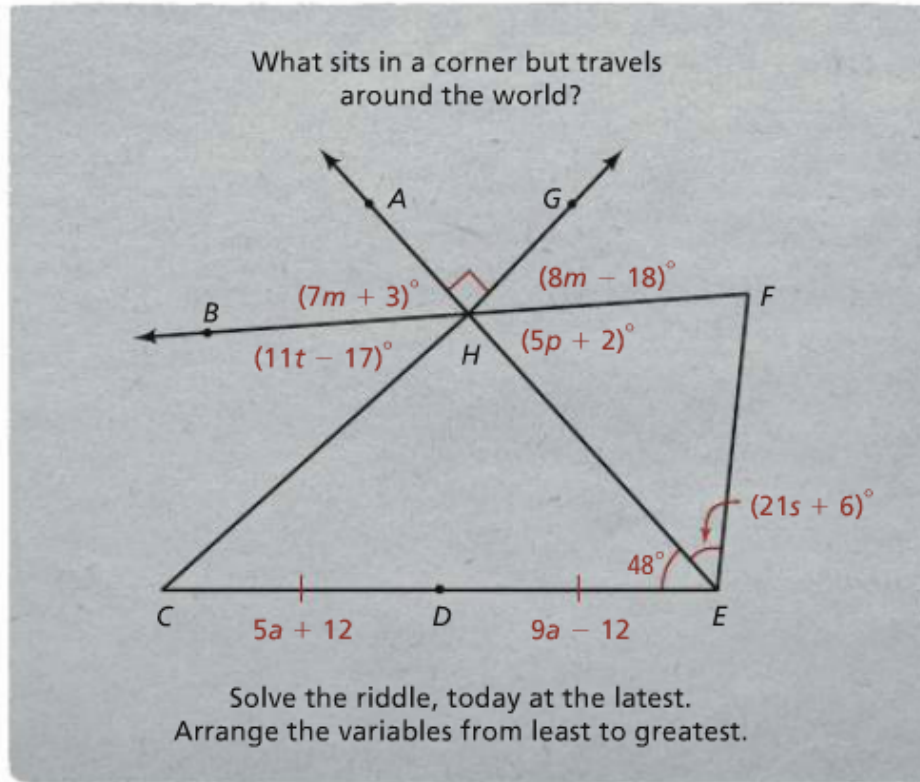


Unit 1: Basics of Geometry Project

Solving a Riddle

While browsing in an antique store, Cameron found a page that came from an old book of riddles.



Task: Find the value of each variable and answer the riddle.

Part 1: Applying What You Learned

Look at the diagram for the riddle Cameron found in an antique store.

A. What relationship between two segments can you state based on information in the diagram? How does the diagram show this relationship?

B. Write and solve an equation to find the value of the variable a .

C. How can you be sure you solved the equation in Part B correctly?

Part 2: Applying What You Learned

Look at the diagram for the riddle Cameron found in an antique store. Choose from the following words and equations to complete the sentences below.

right	congruent	obtuse
$21s + 6 = 48$	$21s + 6 + 48 = 90$	$21s + 6 + 48 = 180$
$s = 6$	$s = 2$	$s \approx 1.7$

A. In the riddle's diagram, $\angle HEF$ and $\angle HED$ are _____ angles.

B. The equation that correctly relates $m\angle HEF$ and $m\angle HED$ is _____.

C. The solution of the equation from Part B is _____.

Part 3: Applying What You Learned

Look at the diagram for the riddle Cameron found in an antique store.

A. Name a pair of adjacent complementary angles in the diagram. Explain how you know they are complementary.

B. Name a pair of nonadjacent complementary angles in the diagram.

C. In Part 1 and Part 2, you found the values of the variables a and s . Which variable's value can you find next? Find the value of this variable.

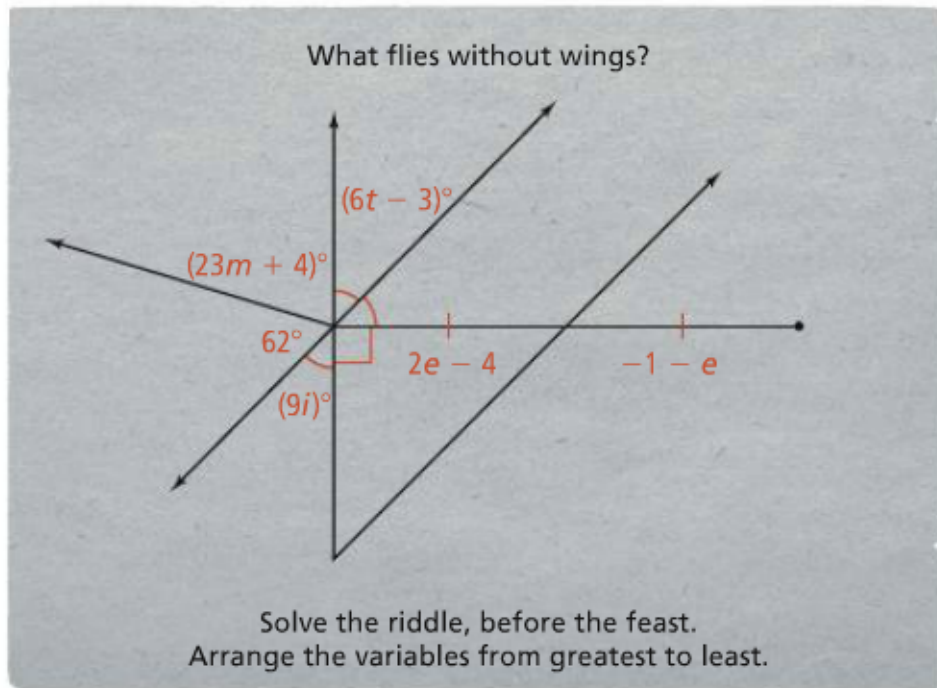
Part 4: Completing the Task

Look back at your results from Parts 1-3. Use the work you did to complete the following.

Solve the problem in the problem of the Task by finding the value of each variable and answering the riddle. Show all your work and explain each step of your solution.

Part 5: On Your Own

Cameron found another page from the old riddle book, as shown below.



A. Find the value of each variable.

B. What is the answer to the riddle?