

# Unit 3 Lesson 7: Reasoning about Solving Equations (Part 1)

## 1 Hanger Diagrams (Warm up)

Images for Launch

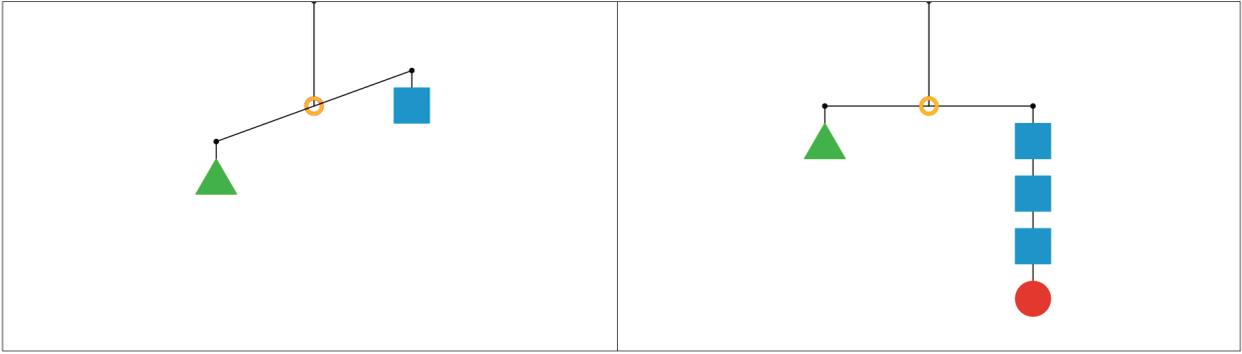


### Student Task Statement

In the two diagrams, all the triangles weigh the same and all the squares weigh the same.

For each diagram, come up with . . .

1. One thing that *must* be true
2. One thing that *could* be true
3. One thing that *cannot possibly* be true



## 2 Hanger and Equation Matching

### Student Task Statement

On each balanced hanger, figures with the same letter have the same weight.

1. Match each hanger to an equation. Complete the equation by writing  $x$ ,  $y$ ,  $z$ , or  $w$  in the empty box.

○  $2\boxed{\phantom{0}} + 3 = 5$

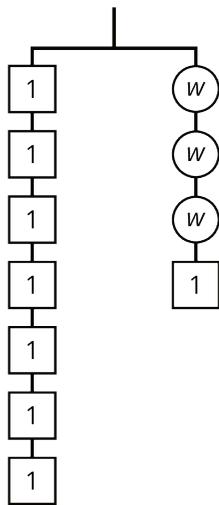
○  $3\boxed{\phantom{0}} + 2 = 3$

○  $6 = 2\boxed{\phantom{0}} + 3$

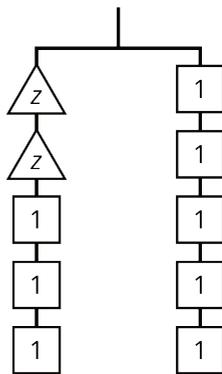
○  $7 = 3\boxed{\phantom{0}} + 1$

2. Find the solution to each equation. Use the hanger to explain what the solution means.

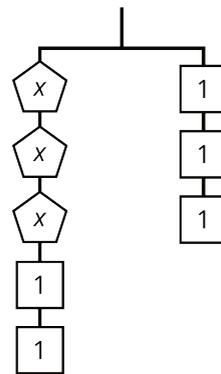
A



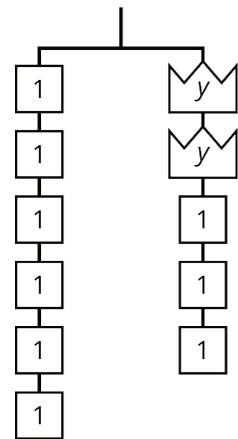
B



C



D



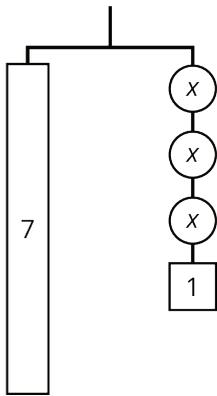
### 3 Use Hangers to Understand Equation Solving

#### Student Task Statement

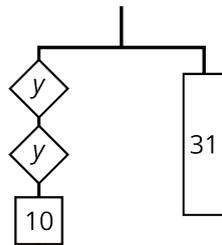
Here are some balanced hangers where each piece is labeled with its weight. For each diagram:

1. Write an equation.
2. Explain how to figure out the weight of a piece labeled with a letter by reasoning about the diagram.
3. Explain how to figure out the weight of a piece labeled with a letter by reasoning about the equation.

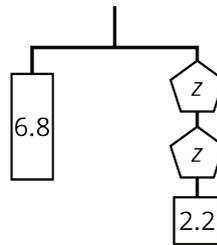
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B



C



D

