

## The Variable Dilemma

Each letter in the equations below stands for a different number (0 through 9). Look at each equation carefully.

Think about the knowledge you have of how numbers work.

Find the values of each letter (A through J).

$$G + G + G = D$$

$$J + E = J$$

$$G^2 = D$$

$$B + G = D$$

$$F - B = C$$

$$A \times C = A$$

$$I / H = A \text{ where } H > A$$

Please keep track of your steps and explain your reasoning. Good luck!

## Steps and Reasoning

**Answer**

$$A = 2$$

$$B = 6$$

$$C = 1$$

$$D = 9$$

$$E = 0$$

$$F = 7$$

$$G = 3$$

$$H = 4$$

$$I = 8$$

$$J = 5$$

## Rubric - Variable Dilemma

Remember for each of these there are ranges (high to low).

No Score 0  
name only

Novice 1  
some work  
limited awareness  
no strategy

Limited awareness of the problem  
Drawing does not connect to the problem  
Attempts to do the task without any strategy for how to begin  
Random or weak organization of problem

Apprentice 2

"The right answer is not enough." - All right answers without explanation would guarantee a 2 rather than a 3 or 4.

Some right answers with good explanation.  
Attempt to use equations although some are incorrect  
Started to process but didn't get far enough into the problem

Shows appropriate use of numbers  
Attempts to use equations although has incorrect solution  
Shows some understanding of the problem  
Random or weak explanation of strategy

Practitioner 3

Most right answers with explanation or clear explanation and some wrong answers.

All answers correct accompanied by the equations with the values correctly plugged into them.

Understands the problem  
Uses appropriate equations  
Correct solutions  
Describes strategy

#### Expert 4

Makes sure that they cover all their bases - they would check all of their answers.

All answers correct with thorough explanation. Identify properties by name OR description.

Generalizes from previous mathematics experience

Experiments successfully to create multiple solutions

Elaborates on process or strategy used