









Activity 1 - Shapeshifting

Part I - Consider the following functions, F, G, H, and K.







- F takes an input of  and yields an output of .
- G takes an input  of and yields an output of .
- H takes an input of  and yields an output of , and
- K takes an input of  and yields an output of .

$$F: \text{diamond with X} \mapsto \text{square}$$

$$G: \text{star} \mapsto \text{diamond with X}$$









$$H: \text{diamond with X} \mapsto \text{circle}$$

$$K: \text{heart} \mapsto \text{square}$$











- a. Chloe has a , but wants a . Can she get what she wants? If so, explain how and specify which functions will be used and in what order.
- b. James has , but wants a . Can he get what he wants? If so, explain how and specify which functions will be used and in what order.
- c. Kierra has a , and wants to use **H** and **K** to get a . Will this work? Why or why not?








Part II - Consider the following relations.

A:

Input				
Output				

B:

Input					
Output					

1. Do the above relations represent functions? Why or why not?
2. Who can get what they want?
 - a. Chloe has a , but wants a . Can she get what she wants? If so, explain how and specify which functions will be used and in what order.
 - b. James has , but wants a . Can he get what he wants? If so, explain how and specify which functions will be used and in what order.
 - c. Jolynn has , but wants a . Can he get what he wants? If so, explain how and specify which functions will be used and in what order.
 - d. If you have , what all the possible shapes could you produce?
3. If we use function notation to write $A(\text{circle}) = \text{star}$, $A(\text{circle with X}) = \text{triangle}$, etc, describe the solution to (a)-(c) above using function notation.