

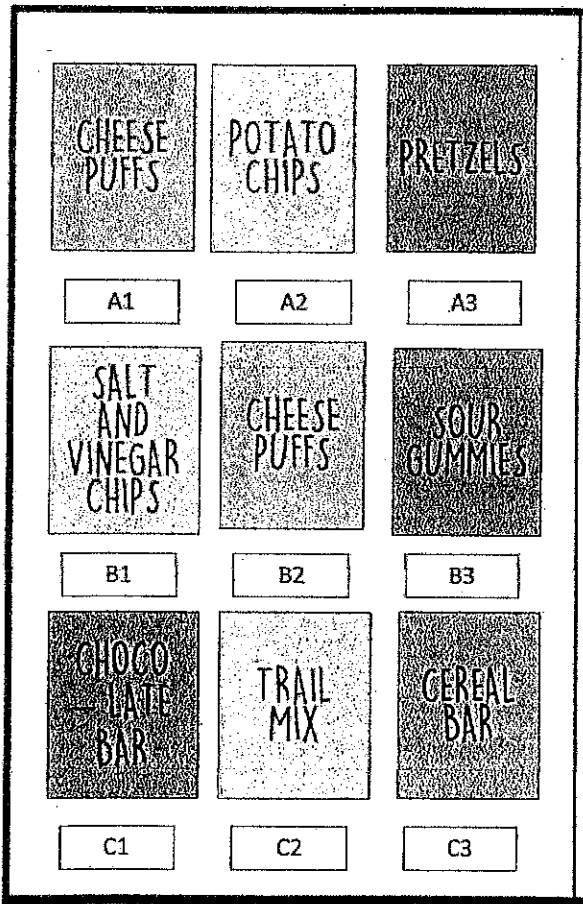
1. Compare the two schedules below. Which schedule is functioning properly? Why?

1 <sup>st</sup>	Advanced Algebra 3-4
2 <sup>nd</sup>	HOTA
3 <sup>rd</sup>	CrossFit
4 <sup>th</sup>	Physics SL

1 <sup>st</sup>	Advanced Algebra 3-4
2 <sup>nd</sup>	HOTA
2 <sup>nd</sup>	CrossFit
3 <sup>rd</sup>	Physics SL

2<sup>nd</sup> period has  
2 classes.

2. Use the vending machine below to answer the following:



a) If you push A3 what do you get?

Pretzels

b) If you got sour gummies, what button did you push?

B3

c) If you push C2 and get trail mix is the vending machine functioning properly?

Yes

d) If you push C2 again and get pretzels is the vending machine functioning properly? Why?

No. C2 should give  
Trail Mix

e) If you input B2 and the machine outputs cheese puffs and a cereal bar is the vending machine functioning properly? Why?

No. B2 should give only  
cheese puffs.

f) **Functions are relations in which a given input always results in only one output.**

Explain what this formal definition means for the vending machine. Under what conditions would the vending machine be a function? Under what conditions would the vending machine not be a function?

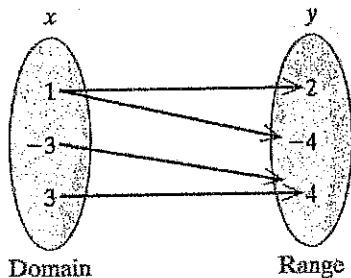
This means each button only gives one type of snack. If a button gives different snacks at different times, the vending machine is not a function.

3. Use the definition of a function from the previous page to decide if the following relationships are functions. Explain why or why not for each one.

Input	Output
1	3
2	6
3	9
4	12
5	15

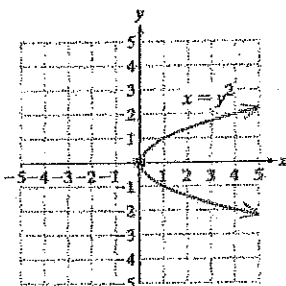
Yes, each  $x$  has only 1  $y$ .

a)



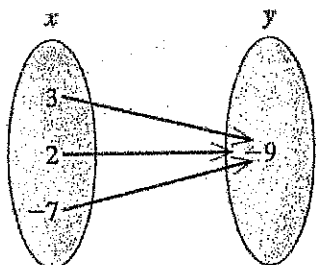
No,  $x = 1$  has 2  $y$ 's (2 & 4)

b)



No,  $x = 1$  has 2  $y$ 's (1 & -1)  
 $x = 4$  has 2  $y$ 's (2 & -2)  
etc.

c)



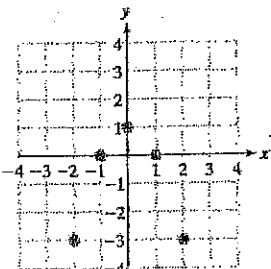
Yes. Each  $x$  has only 1  $y$ .

d)

$x$	$y$
0	3
-2	$\frac{1}{2}$
5	10
-7	1
-2	8
5	1

No,  $x = -2$  has 2  $y$ 's ( $\frac{1}{2}$  & 8)  
 $x = 5$  has 2  $y$ 's (1 & 10)

e)



Yes, each  $x$  has only 1  $y$

f)