

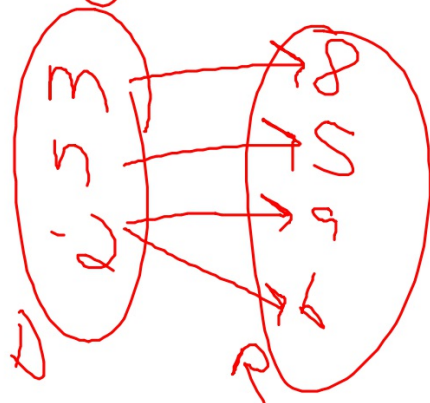
Relation: pairing of input and output  
(x) (y)

$$y = 3x + 4$$

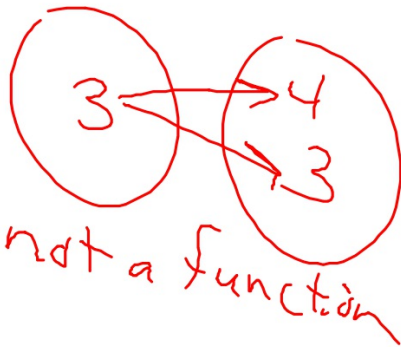
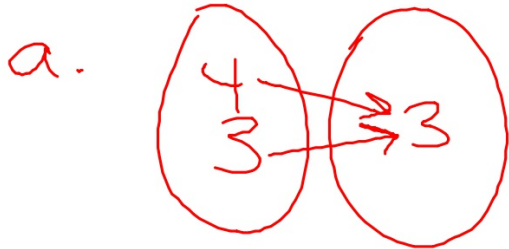
values

Domain: x-value - independent  
variable

Range: y-value - dependent  
variable



#1 - function



b.

x	y
7	3
5	3
5	4

D: {5, 7}

R: {5, 4}

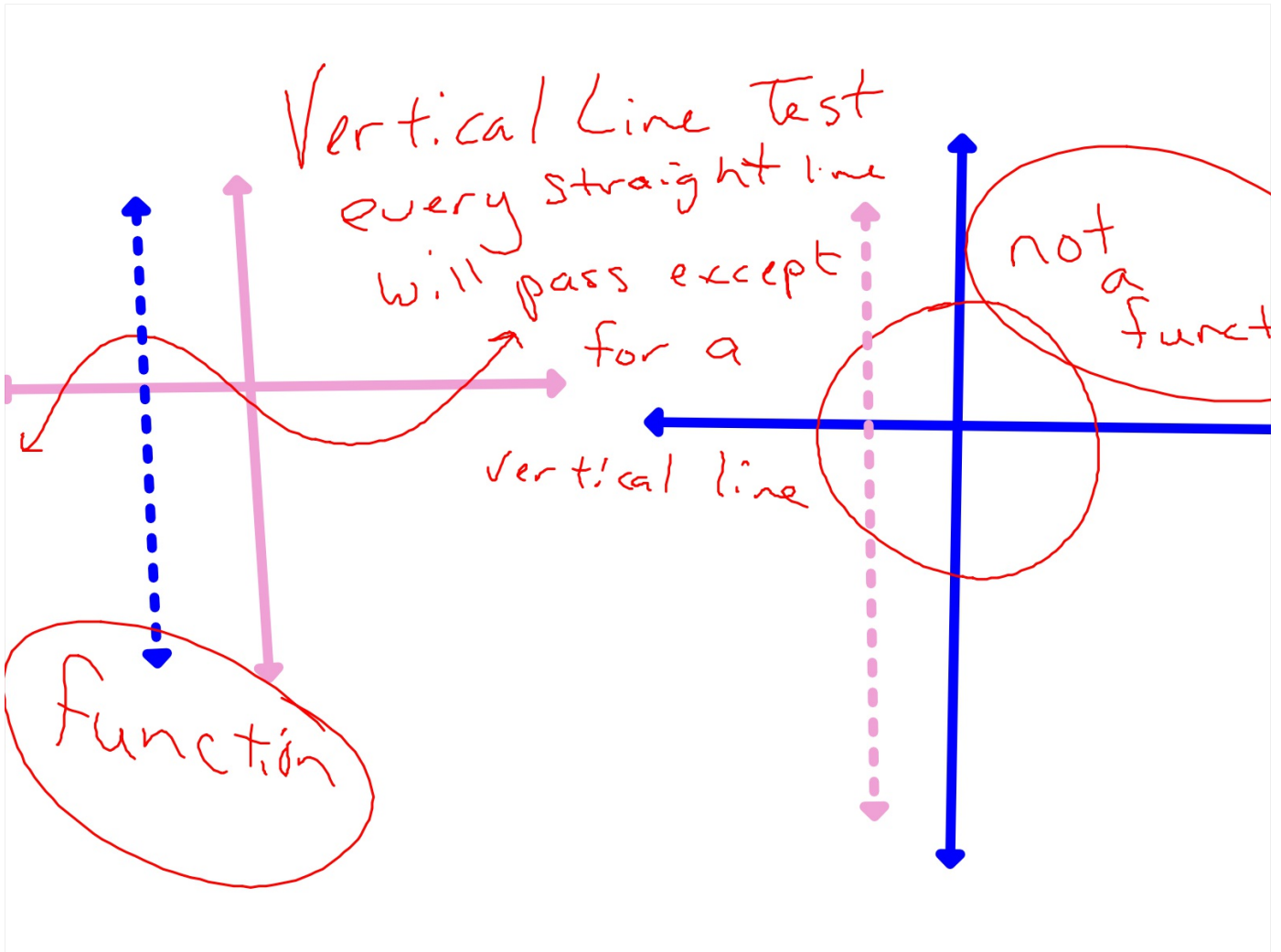
Vertical Line Test  
every straight line  
will pass except

for a

vertical line

not  
a  
funct

function



#3-  $y = 3x + 4$

$$f(x) = 3x + 4$$

~~$h(x) = 4(x-3)$~~   $p(x) = x^2 - 3x$

find  $p(-3)$

$$p(x) = x^2 - 3x$$

$$p(-3) = (-3)^2 - 3(-3)$$

$$9 + 9 = 18$$

$(1, 0.25)$   
↓                      ↘  
minute(s)                      cost

$(2, 0.50)$   
 $(3, 0.75)$   
 $(4, 1)$

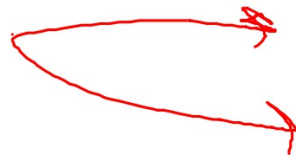
7.

never a  
function

$x^2 \rightarrow$  always

$$y^2 = x$$

$$y^2 = 4$$



x	y
4	2
<del>4</del>	<del>2</del>
	2

$$\textcircled{26.} (5x^3 + 10x^2)(-20x - 40)$$

$$5x^2(x+2) - 20(x+2)$$

$$(5x^2 - 20)(x+2)$$

$$5(x^2 - 4)(x+2)$$

$$5(x+2)^2(x-2)$$

22.

$$\sqrt[3]{x^6 - 27y^3}$$

$$x^3 = x^6$$

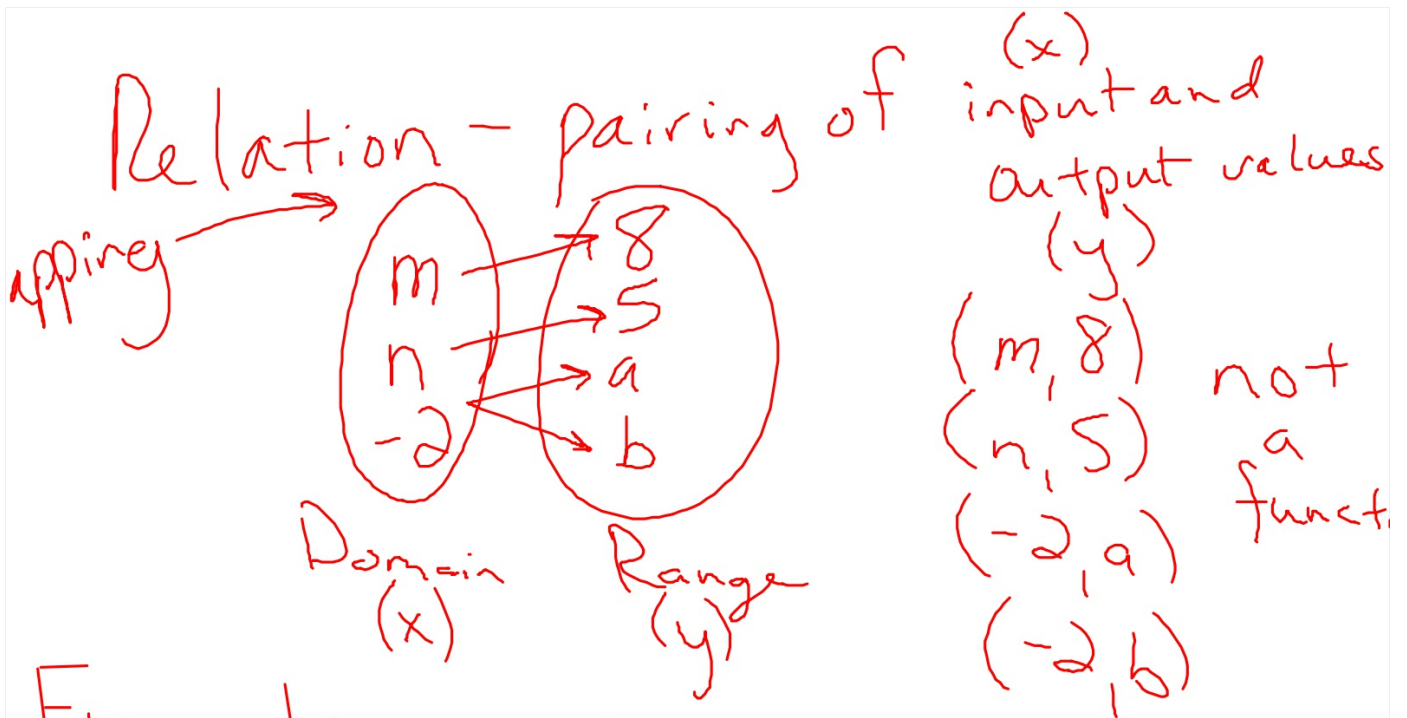
$$x = x^2$$

$$y^3 = 27y^3$$

$$y = 3y$$

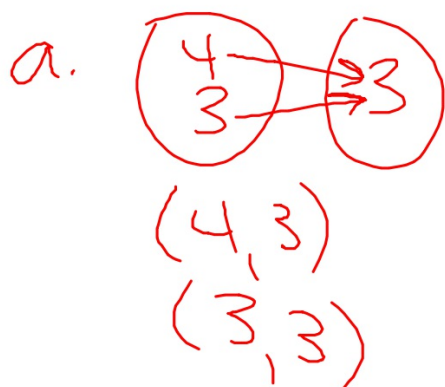
$$(x-y)(x^2+xy+y^2)$$
$$(x^2-3y)(x^4+3x^2y+9y^2)$$





Function - domain does not repeat

#1 -



b.

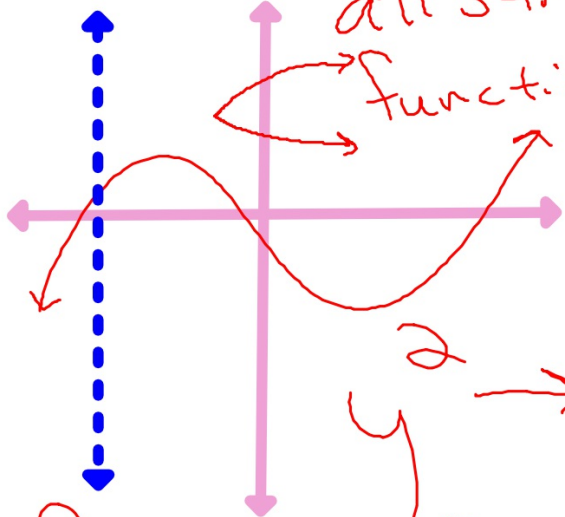
x	y
7	4
5	4
5	3

not  
a  
funct.

#2 - Vertical Line Test  
all straight lines are

functions, except

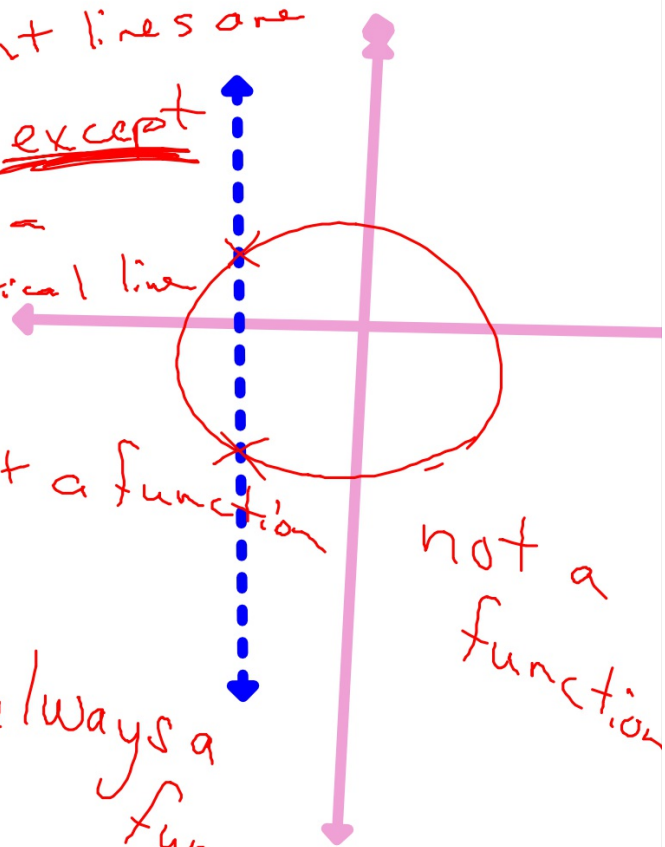
for a  
vertical line



function

$y = x^2$  → not a function

$x = 2$  → always a function



not a function

function notation:

$$y = 2x + 4$$
$$f(x) = 2x + 4$$

#3 -

~~$h(x) = 4x - 3$~~  and  $p(x) = x^2 - 3x$   
find  $p(-3)$

$$p(x) = x^2 - 3x$$

$$p(-3) = (-3)^2 - 3(-3)$$

$$9 + 9 = \textcircled{18}$$

x	y
-3	