

2.1 RELATIONS AND FUNCTIONS

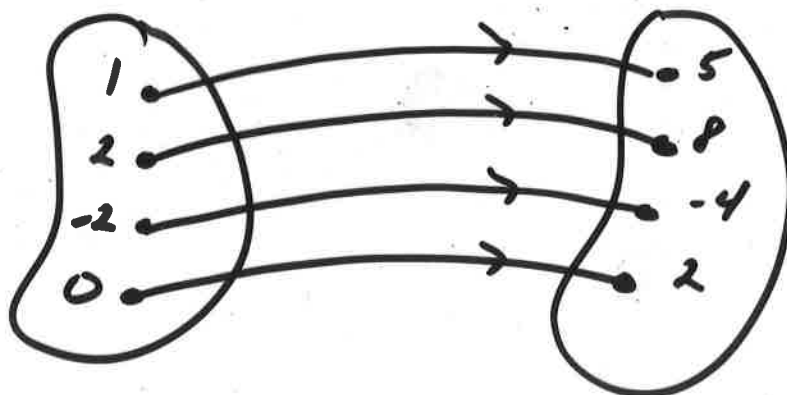
RELATION: A SET OF ORDERED PAIRS

① $\{(1, 5), (2, 8), (-2, -4), (0, 2)\}$

DOMAIN: SET OF X-COORDINATES
 $\{1, 2, -2, 0\}$

RANGE: SET OF Y-COORDINATES
 $\{5, 8, -4, 2\}$

② MAPPING DIAGRAM

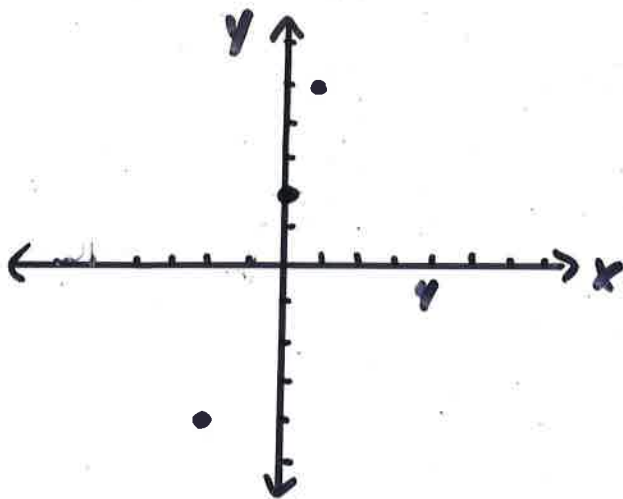


DOMAIN

RANGE

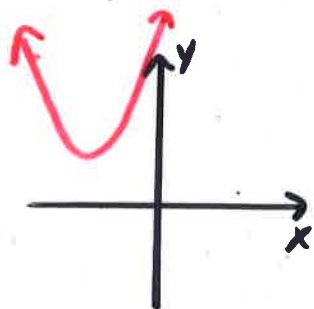
③ $f(x) = 3x + 2$ EQUATION

④ GRAPH

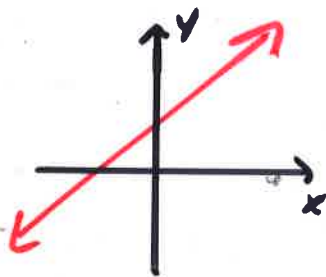


NOTE: ALL 4 ABOVE SHOW THE SAME RELATION

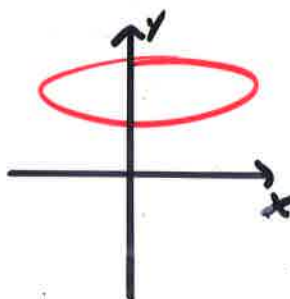
VERTICAL LINE TEST (VLT): If any vertical line passes the graph at two or more points, then the graph is not a function



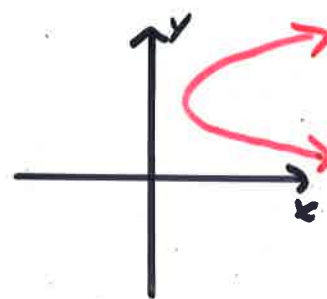
YES



YES



NO



NO

EX: LET $f(x) = 2x^2 - 4x + 1$
FIND $f(3)$ AND $f(-2)$

$$f(3) = 2(3)^2 - 4(3) + 1$$

$$= 2(9) - 12 + 1 = 7$$

$$f(-2) = 2(-2)^2 - 4(-2) + 1$$

$$= 2(4) + 8 + 1 = 17$$