Quiz1, MAT1375 Professor Chiu

ID:_____ Name: Sol. _____

- This quiz consists of 3 questions for a total of 10 points.
- You have 15 minutes to complete the quiz.
- Show all work and justify your answers.
- Wishing you success.

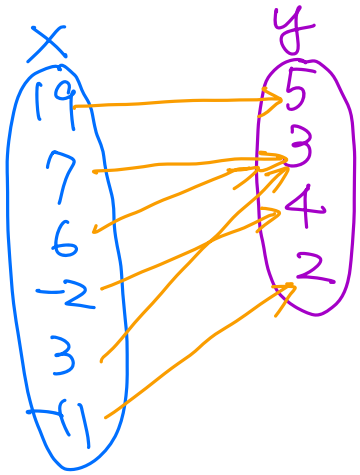
1.Complete the table

Inequality notation	Number line	Interval notation
$x < 3$		$(-\infty, 3)$
$-5 \leq x < -2$		$[-5, -2)$
$-4 < x < 1$		$(-4, 1)$

2. The tables below describe assignments between inputs x and outputs y. Determine which of the given tables describe a function. If they do, determine their domain and range. Describe which outputs are assigned to which inputs.

a)

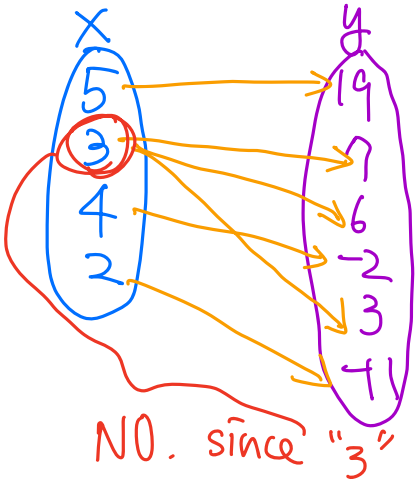
x	19	7	6	-2	3	-11
y	5	3	3	4	3	2



Yes. since each x only gets one y Then, this is a function. and its domain is $\{19, 7, 6, -2, 3, -11\}$ and range is $\{5, 3, 4, 2\}$

b)

x	5	3	3	4	3	2
y	19	7	6	-2	3	-11



NO. since "3" has more than one output. Thus, this is not a function

Please turn over and finish the rest of the question.

3. Given a function $f(x) = x^2 + 2x - 3$. Find (a) $f(-2)$; (b) $\frac{f(x+h)-f(x)}{h}$.

(a) $f(-2) = (-2)^2 + 2(-2) - 3$

$= 4 - 4 - 3 = -3$

(b) $f(x+h) = (x+h)^2 + 2(x+h) - 3$

$= x^2 + 2xh + h^2 + 2x + 2h - 3$

$f(x+h) - f(x) = x^2 + 2xh + h^2 + 2x + 2h - 3 - (x^2 + 2x - 3)$

$= x^2 + 2xh + h^2 + 2x + 2h - 3 - x^2 - 2x + 3$

$= 2xh + h^2 + 2h$

$\frac{f(x+h) - f(x)}{h} = \frac{2xh + h^2 + 2h}{h} = \frac{h(2x + h + 2)}{h} = 2x + h + 2$

End of this quiz.