

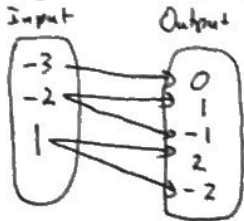
MA202 HW 21 Solutions: 15.4: #4, 10, 14, 20, 22, 24, 30, 36, 44. Options: 6, 16, 32, 46

15.4.4) a) Relation, because we have both $(5,0)$ and $(5,10)$, so inputs do not have unique outputs.

b) Function, because every input has a unique output.

15.4.6) It does represent a function; every input has a unique output.

15.4.10) Given: $(-3,0)$, $(-2,1)$, $(-2,-1)$, $(1,2)$, $(1,-2)$.



This is not a function, since -2 and 1 both have two outputs.

15.4.14) a) $a=3b$ b) $Out = \frac{1}{2} \cdot In - 7$

15.4.16) a) $y=3x+1$ b) $y=\frac{1}{2}x-1$

15.4.20) a) $C = 25 + 2h$
 $C = \text{cost in } \$$
 $h = \text{hours watched}$

b) C is dependent,
 h is independent

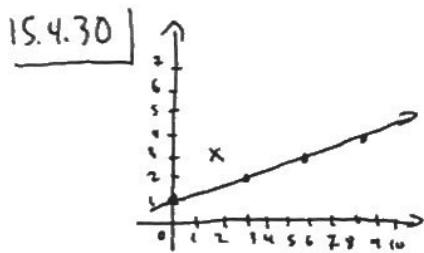
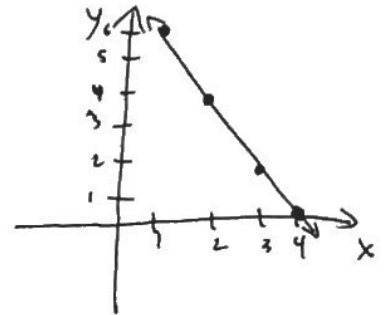
c) $C = 25 + 2(6.5) + 1$
 $= 25 + 13 + 1$
 $= 39$

15.4.22) Output is 2 less than 5 times the input.

So $28 = 5x - 2$, so $5x = 30$, so $x = 6$

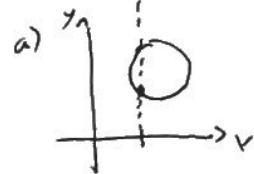
15.4.24)

x	1	2	3	4
y	6	4	2	0

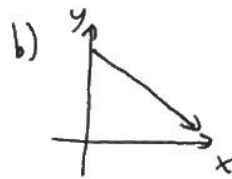


$(2, 3)$ does not lie on the graph of the function, so it is not a solution.

15.4.32)



The graph is not even a function. See dotted line.



The graph represents a linear function because it is a line.

15.4.36) Yes, this function is linear. It decreases by 2 for every increase of 1 in the input.

15.4.44) a) $R = 499t$ b) $C = 500 + 259.6t$ c) $P = R - C = 499t - (500 + 259.6t) = 239.4t - 500$

$P(1000) = 239.4(1000) - 500 = 239,400 - 500 = \$238,900$

d) $C = C_w + 40t = 299.6t + 500$

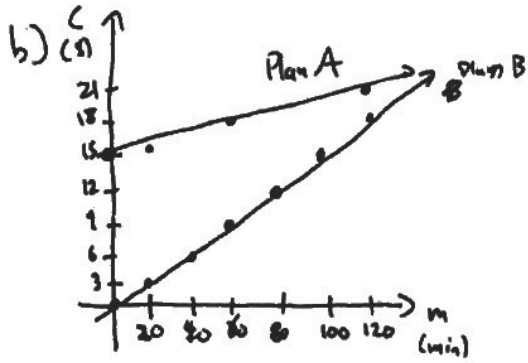
e) $1,000,000 = P_{new} = 499t - (299.6t + 500)$
 $= 199.4t - 500$

$1,000,500 = 199.4t$

$t = \frac{10,005,000}{1994} \approx 5017.5$, so rounding gives **5018 tablets**

15.4.46 | $C = \text{cost in } \$ / \text{month}$, $m = \# \text{ minutes used / month}$

a) $C_A = 15 + 0.05m$ $C_B = 0.15m$



c) Choose plan A when you expect to use lots of minutes since it is cheaper per minute.

Choose plan B when you expect to use few minutes since it is more expensive per minute.