Ex. 1.1

42. What is the value of x after each of these statements is encountered in a computer program if $x = 1$ before the statement is reached?

a. if $x+2 = 3$ then $x := x+1$

$x = 2$

b. if $(x+1 = 3)$ OR $(2x+2 = 3)$ then $x := x+1$

here its true or false which is true. Hence $x = 3$

c. if $(2x+3 = 5)$ AND $(3x+4 = 7)$ then $x := x+1$

here $2(3)+3 \neq 5$ AND $3(3)+4 \neq 7$ hence it false so $x = 3$ again as then wont execute.

d. if $(x+1 = 2)$ XOR $(x+2 = 3)$ then $x := x+1$

here also both are false and hence $x = 3$

e. if $x < 2$ then $x := x+1$

here, as 3 is not < 2, x retains 3.