Task 6

2.3

Q(4)

b) the function that assigns the next largest integer to a positive integer

d) The ceiling function $\lceil x \rceil$ assigns to the real number x the smallest integer that is greater than or equal to x.

$\lceil 3.\bar{1} \rceil = 4$

Q(8)

a) $\lfloor 1.1 \rfloor = 1$

b) $\lfloor -0.1 \rfloor = -1$

f) $\lceil -2.99 \rceil = -2$

Q(10)

{a, b, c, d} to itself is one-to-one.c) f(a) = d, f(b) = b, f(c) = c, f(d) = d

(c) not one-one

Q(22)

a)   f(x)=−3x+4 is a bijection.

It is one-to-one as f(x) = f(y)⟹−3x+4 = −3y+4⟹x = y

It is onto as f(4−x3) = x   (**Yes**)

c) There is no real number x such that f(x)=x+1x+2=1. Hence the function is not a bijection.   **(No)**

2.4

Q(1)

    b) −1   c) 787

Q(29)

  b) 11   c) 30

Q(31)

  a) 1533   c) 4923

Q(33)

  b) 78   d) 18

2.6

Q(29)

b) $\begin{bmatrix} 2 & -2 & -3 \\ 1 & 0 & 2 \\ 9 & -4 & 4 \end{bmatrix}$