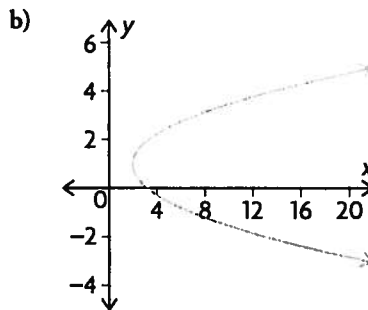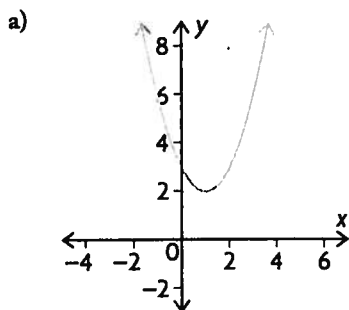**4.** Determine whether each relation is a function, and state its domain
K and range.
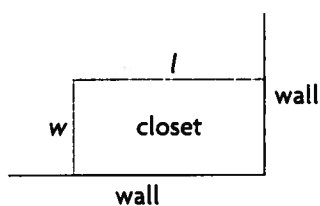
a)

b)

c) $x^2 = 2y + 1$

d) $x = y^2$

e) $y = \dfrac{3}{x}$

f) $f(x) = 3x + 1$

5. Determine the equations that describe the following function rules:
   a) The input is 3 less than the output.
   b) The output is 5 less than the input multiplied by 2.
   c) Subtract 2 from the input and then multiply by 3 to find the output.
   d) The sum of the input and output is 5.

6. Martin wants to build an additional closet in a corner of his bedroom.
   Because the closet will be in a corner, only two new walls need to be
   built. The total length of the two new walls must be 12 m. Martin wants
   the length of the closet to be twice as long as the width, as shown in the
   diagram.
   a) Explain why $l = 2w$.
   b) Let the function $f(l)$ be the sum of the length and the width. Find
      the equation for $f(l)$.
   c) Graph $y = f(l)$.
   d) Find the desired length and width.

7. The following table gives Tina's height above the ground while riding a
A Ferris wheel, in relation to the time she was riding it.

Time (s)	0	20	40	60	80	100	120	140	160	180	200	220	240
Height (m)	5	10	5	0	5	10	5	0	5	10	5	0	5

   a) Draw a graph of the relation, using time as the independent variable
      and height as the dependent variable.
   b) What is the domain?
   c) What is the range?
   d) Is this relation a function? Justify your answer.
   e) Another student sketched a graph, but used height as the independent
      variable. What does this graph look like?
   f) Is the relation in part e) a function? Justify your answer.