Planner

Functions and mappings

- Using algebra to describe a mapping
- Completing a mapping diagram

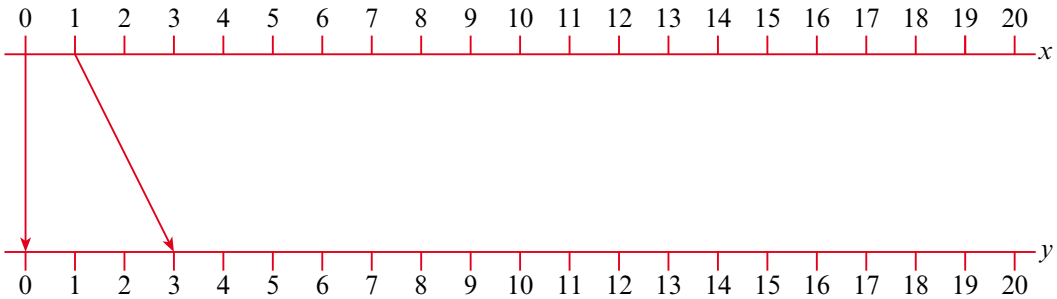
Keywords

You should know

explanation 1

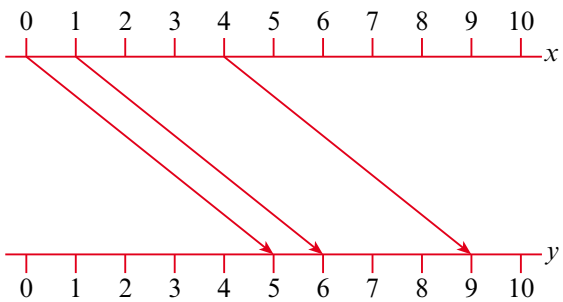
online

1 **a** Copy and complete this mapping diagram to show $x \rightarrow 3x$.



b Write the rule for the mapping as $y =$ □.

2 Here is a partly completed mapping diagram.

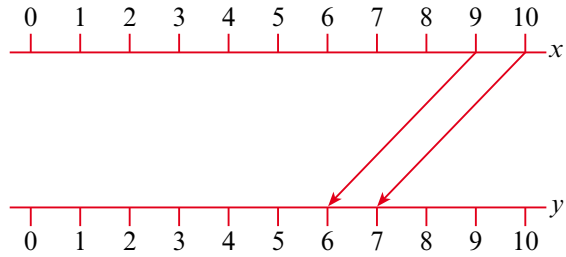


a Copy and complete the diagram.

b Copy and complete these statements.
The rule for the mapping may be written as

i $y =$ □ **ii** $x \rightarrow$ □

3 **a** Copy and complete this mapping diagram.



b Find the ouput for each of these input values.

i 16 **ii** 21 **iii** 38

c Copy and complete these statements.
The rule for the mapping may be written as

i $y =$ ☐ **ii** $x \rightarrow$ ☐

4 Here is a **function machine**. $x \rightarrow$ [× 2] → [+ 3] → y

a Copy and complete these statements.
The rule for the mapping may be written as

i $y =$ ☐ **ii** $x \rightarrow$ ☐

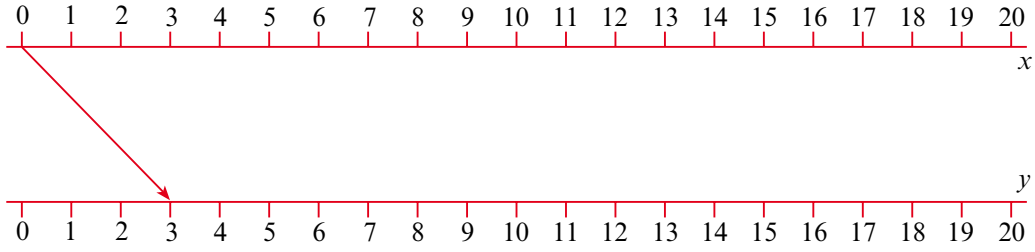
b Find the **output** for each of these input values.

i 0 **ii** 1 **iii** 4 **iv** 10

c Find the **input** for each of these output values.

i 17 **ii** 63 **iii** 20 **iv** 50

d Copy and complete this mapping diagram.



5 This function machine uses the same instructions as in question **1**, but in reverse order.

$x \rightarrow$ [+ 3] → [× 2] → y

a Explain why the rule for this function machine cannot be written as $y = x + 3 \times 2$.

b Write the rule correctly in the form $y =$ ☐

c Find the value of y when $x = 10$.

d Find the value of x when $y = 50$.

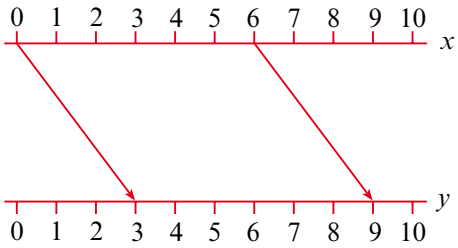
***6 a** Which mapping diagram belongs to which equation?

b Copy and complete the mapping diagrams.

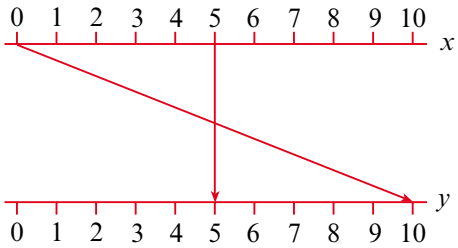
$y = 20 - 2x$ $y = 10 - x$ $y = 2(x - 5)$ $y = 2x - 5$

$y = 2x + 3$ $y = x - 1$ $y = x + 3$

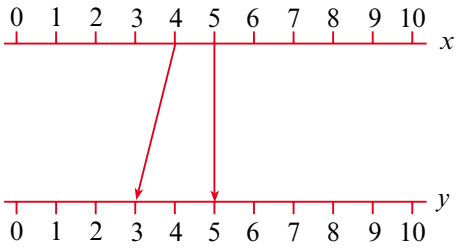
i



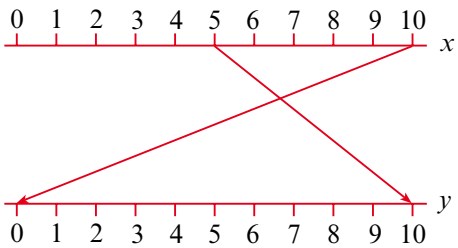
ii



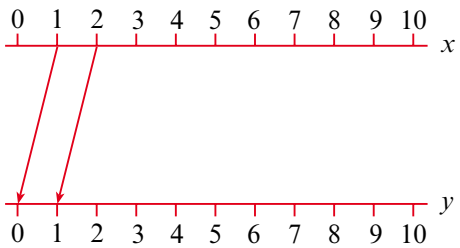
iii



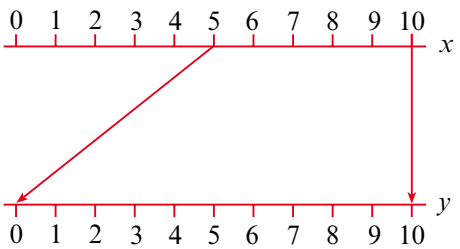
iv



v



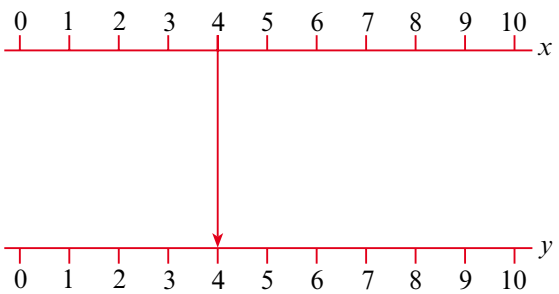
vi



***7 a** Which of the labels below could match the partly completed mapping diagram?

$x \to x$ $x \to 2(x - 2)$

$x \to 4x$ $x \to 8 - x$



b Which label is correct for each of these mappings?

i $3 \to 5$ **ii** $10 \to 10$ **iii** $5 \to 6$