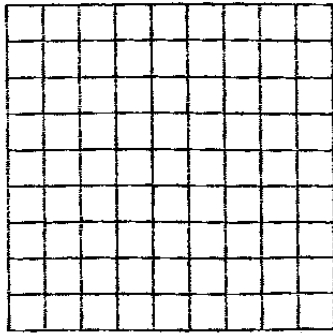
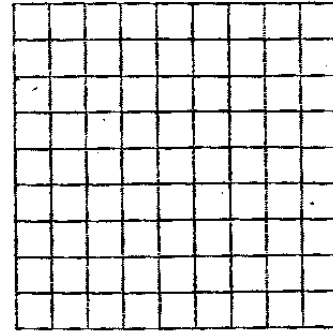


3. $x = -3t + 4$ and $y = t + 1$
for $1 \leq t \leq 4$



4. $x = -2t + 2$ and $y = t - 1$
for $0 \leq t \leq 4$



EXAMPLE 2

Eliminating the Parameter

Write an xy -equation for the parametric equations in Example 1:
 $x = t - 3$ and $y = -2t + 1$ for $1 \leq t \leq 5$. State the domain for the equation.

SOLUTION

First solve one of the parametric equations for t . It is more convenient to solve the x -equation because the coefficient of t is one.

$x = t - 3$ Write original equation.

$x + 3 = t$ Add 3 to each side.

Then substitute this value for t in the other parametric equation.

$y = -2t + 1$ Write original equation.

$y = -2(x + 3) + 1$ Substitute for t .

$y = -2x - 6 + 1$ Use distributive property.

$y = -2x - 5$ Simplify.

To find the domain of the xy -equation, determine the values of x when $t = 1$ and $t = 5$. When $t = 1$, $x = t - 3 = 1 - 3 = -2$, and when $t = 5$, $x = t - 3 = 5 - 3 = 2$. So, the domain is $-2 \leq x \leq 2$.

Write an xy -equation for the parametric equations. State the domain.

7. Exercise 3

8. Exercise 4