1. Write down the matrix that will transform the first equation into the second.

(a) $y = x + 3,\quad y = x - 4$ (b) $y = x + 1,\quad y = x + 3$

(c) $y = x - 1,\quad y = x - 5$ (d) $y = x - 3,\quad y = x + 2$

(e) $y = x + 5,\quad y = x - 7$ (f) $y = x - 4,\quad y = x + 6$

2. Write down the equation of the line after the matrix transformation.

(a) $y = x + 1$ $\begin{pmatrix} 0 \\ 2 \end{pmatrix}$ (b) $y = x - 2$ $\begin{pmatrix} 0 \\ 3 \end{pmatrix}$ (c) $y = x + 3$ $\begin{pmatrix} 0 \\ -2 \end{pmatrix}$

(d) $y = x - 3$ $\begin{pmatrix} 0 \\ -1 \end{pmatrix}$ (e) $y = x + 2$ $\begin{pmatrix} 0 \\ -3 \end{pmatrix}$ (f) $y = x - 1$ $\begin{pmatrix} 0 \\ -2 \end{pmatrix}$

3. Write down the matrix that will transform the first equation into the second.

(a) $y = x^2,\quad y = (x + 2)^2$ (b) $y = 2x^2,\quad y = 2(x - 1)^2$

(c) $y = 3x,\quad y = 3(x + 3)$ (d) $y = 2x^3,\quad y = 2(x - 2)^3$

(e) $y = 3x^2,\quad y = 3(x - 3)^2$ (f) $y = 5x,\quad y = 5(x + 2)$

4. Write down the equation of the line after the matrix transformation.

(a) $y = x^2$ $\begin{pmatrix} -3 \\ 0 \end{pmatrix}$ (b) $y = 2x^2$ $\begin{pmatrix} 2 \\ 0 \end{pmatrix}$ (c) $y = 3x$ $\begin{pmatrix} -1 \\ 0 \end{pmatrix}$

(d) $y = 2x^3$ $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ (e) $y = 3x^2$ $\begin{pmatrix} -2 \\ 0 \end{pmatrix}$ (f) $y = 5x^3$ $\begin{pmatrix} 4 \\ 0 \end{pmatrix}$

1.

(a) $\begin{pmatrix} 0 \\ -7 \end{pmatrix}$ (b) $\begin{pmatrix} 0 \\ 2 \end{pmatrix}$ (c) $\begin{pmatrix} 0 \\ -4 \end{pmatrix}$

(d) $\begin{pmatrix} 0 \\ 5 \end{pmatrix}$ (e) $\begin{pmatrix} 0 \\ -12 \end{pmatrix}$ (f) $\begin{pmatrix} 0 \\ 10 \end{pmatrix}$

2.

(a) $y = x + 3$ (b) $y = x + 1$ (c) $y = x + 1$

(d) $y = x - 4$ (e) $y = x - 1$ (f) $y = x - 3$

3.

(a) $\begin{pmatrix} -2 \\ 0 \end{pmatrix}$ (b) $\begin{pmatrix} 1 \\ 0 \end{pmatrix}$ (c) $\begin{pmatrix} -3 \\ 0 \end{pmatrix}$

(d) $\begin{pmatrix} 2 \\ 0 \end{pmatrix}$ (e) $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ (f) $\begin{pmatrix} -2 \\ 0 \end{pmatrix}$

4.

(a) $y = (x + 3)^2$ (b) $y = 2(x - 2)^2$ (c) $y = 3(x + 1)$

(d) $y = 2(x - 3)^3$ (e) $y = 3(x + 2)^2$ (f) $y = 5(x - 4)^3$