6. Explain what transformations you would need to apply to the graph of $y = f(x)$ to graph each function.

a) $y = f\left(\frac{1}{3}(x + 4)\right)$

b) $y = 2f(-(x - 3)) + 1$

c) $y = -3f(2(x - 1)) - 3$

**Also write mapping notation for each.

Answer:

6. a) Horizontal stretch of factor 3, then a translation 4 units to the left.
b) Vertical stretch of factor 2, then a reflection over the y-axis, then a translation 3 units to the right and 1 unit up.
c) Vertical stretch of factor 3, then a reflection over the x-axis, then a horizontal compression of factor $\frac{1}{2}$, then a translation 1 unit to the right and 3 units down.

a) (x,y) → (3x-4, y)
b) (x,y)→ (-x+3, 2y+1)
c) (x,y) → (0.5x+1, -3y-3)

11. The function $y = f(x)$ has been transformed to $y = f(kx)$. Determine the value of k for each transformation.

a) a horizontal stretch by the factor 4
b) a horizontal compression by the factor $\frac{1}{2}$
c) a reflection in the y-axis
d) a horizontal compression by the factor $\frac{1}{5}$ and a reflection in the y-axis

Answer:

11. a) $k = \frac{1}{4}$.
b) $k = 2$
c) $k = -1$
d) $k = -5$