

Apply a vertical reflection, a horizontal stretch factor $\frac{1}{5}$ and a horizontal translation 3 units to the right to the following functions:

a) $y = f(x)$

$$y = -f(5(x-3))$$

b) $y = \frac{1}{x}$

$$y = -\frac{1}{5(x-3)}$$

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

$$\begin{aligned} y &= -\left(-2(5(x-3))^2 + 3(5(x-3)) - 1\right) \\ &= 2(25(x-3)^2) - 15(x-3) + 1 \\ &= 50x^2 - 315x + 496 \end{aligned}$$

Apply the same transformations to the following points (mapping)

d) $(-1, 3) \xrightarrow[\text{stretches}]{\text{reflections \&}} \left(-\frac{1}{5}, -3\right) \xrightarrow{\text{transl.}} \left(\frac{14}{5}, -3\right)$

e) $(2, -5) \xrightarrow[\text{stretches}]{\text{reflections \&}} \left(\frac{2}{5}, 5\right) \xrightarrow{\text{transl.}} \left(\frac{17}{5}, 5\right)$