1) Let $y = f(x) = \log_2 x$, $y = g(x) = \log_2 x + 3$ and $y = h(x) = \log_2 x - 3$.

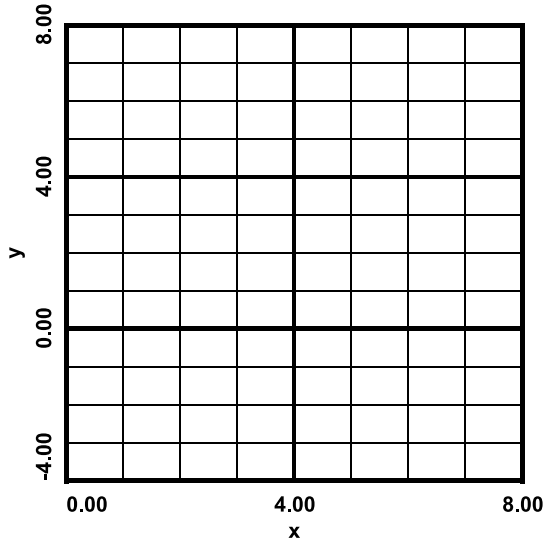
a) Describe the translation that takes $y = f(x)$ to $y = g(x)$.

b) Describe the translation that takes $y = f(x)$ to $y = h(x)$.

c) Write $y = g(x)$ as a horizontal compression of $y = f(x)$. Explain the compression in words.

d) Write $y = h(x)$ as a horizontal stretch of $y = f(x)$. Explain the stretch in words.

e) Graph $y = f(x)$, $y = g(x)$ and $y = h(x)$ on the axes below. Indicate the translations, compression and stretch on the graph.



2) Describe the transformation that takes $y = f(x) = \ln x$ to $y = g(x) = \ln \sqrt[3]{x+1} - 8$.

3) Let $y = f(x) = \log_7 x$.

a) Write $y = g(x) = \log_7 x^2$ as a vertical stretch of $y = f(x)$. Explain the stretch in words.

b) Write $y = h(x) = \log_7 \sqrt{x}$ as a vertical compression of $y = f(x)$. Explain the compression in words.

4) Let $y = f(x) = -\log_3(x-2) + 5$.

a) Graph $y = x$ on the axes below.

b) Graph $y = f(x)$ on the axes below. Indicate the vertical asymptote (V.A.) of $y = f(x)$ on the graph.

c) Calculate $y = f^{-1}(x)$.

d) Graph $y = f^{-1}(x)$ on the axes below. Indicate the horizontal asymptote (H.A.) of $y = f^{-1}(x)$ on the graph.

e) State the domain and range of both $y = f(x)$ and $y = f^{-1}(x)$.