2. [12 points]

a. [2 points] The graph of an odd function $y = f(x)$ contains the point $(-2, 4)$. What other point must be in the graph of $y = f(x)$?

Answer: (,).

b. [2 points] The graph of an invertible function $g(x)$ contains the point $(3, 7)$. What point must be in the graph of $y = g^{-1}(x)$?

Answer: (,).

c. [4 points] The function $h(x)$ is obtained by applying the following transformations to the function $y = \sqrt{1+x}$ in this exact order:

i) A vertical shift up by 5 units.
ii) A reflection about the y-axis.
iii) A horizontal compression by $\frac{1}{7}$.
iv) A horizontal shift to the left by 3 units .

Find a formula for $h(x)$.

$h(x) =$ _____

d. [4 points] Let $f(x) = (\sin(x^2) + 3)^2$ and $g(x) = x^2$. Find formulas for the functions $h(x)$ and $w(x)$ that satisfy:

i) $f(x) = g(w(x))$ $\qquad w(x) =$ _____.

ii) $f(x) = h(g(x))$ $\qquad h(x) =$ _____.