Name: _____

Composition of Three Functions

A) If $f(x) = 4^x$, $g(x) = \log_4 4x$ and $h(x) = x^2 + 1$, find the following.

1) $h(f(g(a)))$

2) $f\left(g\left(h\left(\frac{t}{2}\right)\right)\right)$

B) If $f(x) = -2$, $g(x) = 3x + 5$ and $h(x) = x^4 - 5x^2 + 1$, find the following.

1) $(h \circ g \circ f)(c + 4)$

C) If $f(x) = \sqrt[3]{8x}$, $g(x) = x$

1) $(f \circ (h \circ g))(-2w)$

3) Is $(f \circ (h \circ g))(-2w)$

D) 1) If $f(x) = \frac{7}{x}$, $g(x) = -5x$ and $h(x) = x - 9$, which of the following represents $g(f(h(9 - 7p)))$?

i) $-5p$ ii) $-\frac{5}{p}$ iii) $5p$ iv) $\frac{5}{p}$

2) If $f(x) = 3 \log_3 x$, $g(x) = 9^x$ and $h(x) = 3$, which of the following represents $(f \circ g \circ h)(n)$?

i) 9 ii) −18 iii) 18 iv) 3