Name: _____

Composition of Three Functions

L2S2

A) If $f(x) = 7$, $g(x) = 9 \log_7 x$ and $h(x) = 4x$, find the following.

1) $h(f(g(x)))$

2) $f(h(g(x)))$

B) If $f(x) = \frac{3}{x^2}$, $g(x) = 10$ and $h(x) = \sqrt{x - 7}$, find the following.

1) $(f \circ h \circ g)(x)$

C) If $f(x) = x + 2$, $g(x) =$

1) $((h \circ f) \circ g)(x)$

3) Is $((h \circ f) \circ g)(x) \neq$

D) 1) If $f(x) = 8^x$, $g(x) = 5 \log_8 x$ and $h(x) = x^2 + 7x + 1$, which of the following represents $g(f(h(x)))$?

i) $-5x^3 + 35x + 5$ ii) $5x^3 + 35x - 5$ iii) $5x^3 + 35x + 5$ iv) $5x^3 - 35x + 5$

2) If $f(x) = x$, $g(x) = 4x - 3$ and $h(x) = x^2 + 9x$, which of the following represents $(f \circ (g \circ h))(x)$?

i) $4x^2 + 36x + 3$ ii) $4x^2 + 36x - 3$ iii) $-4x^2 + 36x + 3$ iv) $4x^2 - 36x - 3$

Name: _____ **Answer key**

Composition of Three Functions

L2S2

A) If $f(x) = 7$, $g(x) = 9 \log_7 x$ and $h(x) = 4x$, find the following.

1) $h(f(g(x)))$ **28**

2) $f(h(g(x)))$ **7**

B) If $f(x) = \frac{3}{x^2}$, $g(x) = 10$ and $h(x) = \sqrt{x-7}$, find the following.

1) $(f \circ h \circ g)(x)$ **1**

C) If $f(x) = x + 2$, $g(x) =$.

1) $((h \circ f) \circ g)(x)$ **$x^2 - 4$**

3) Is $((h \circ f) \circ g)(x) \neq$ **lse**

D) 1) If $f(x) = 8^x$, $g(x) = 5 \log_8 x$ and $h(x) = x^2 + 7x + 1$, which of the following represents $g(f(h(x)))$?

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2) If $f(x) = x$, $g(x) = 4x - 3$ and $h(x) = x^2 + 9x$, which of the following represents $(f \circ (g \circ h))(x)$?

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