

Composition of Three Functions

A) If $f(x) = e^x$, $g(x) = \frac{x}{4}$ and $h(x) = 8(x^2 + 7)$, find the following.

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

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

B) If $f(x) = 4 \log_3 x$, $g(x) = 3^x$ and $h(x) = 9 - x$, find the following.

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

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

C) If $f(x) = \frac{1}{x+2}$, $g(x) =$

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

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

D) 1) If $f(x) = 5x + 3$, $g(x) = x - 5$ and $h(x) = -x$, which of the following represents $(g \circ (h \circ f))(x)$?

i) $25x^2 + 30x + 6$

ii) $25x^2 + 30x - 6$

iii) $25x^2 - 30x + 6$

iv) $-25x^2 + 30x + 6$

2) If $f(x) = x^3 - x + 1$, $g(x) = \sqrt{2x}$ and $h(x) = 2x^2$, which of the following represents $f(h(g(x)))$?

i) $64x^3 + 4x - 1$

ii) $-64x^3 - 4x + 1$

iii) $64x^3 - 4x - 1$

iv) $64x^3 - 4x + 1$

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