

Composition of Three Functions

A) If $f(x) = x^4 + 4x^3$, $g(x) = 2 \log_e x$ and $h(x) = e^{-x}$, find the following.

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

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

B) If $f(x) = x^2 + 1$, $g(x) = x - 1$ and $h(x) = 7x$, find the following.

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

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

C) If $f(x) = 9x^2$, $g(x) = \frac{5}{x}$

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

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

D) 1) If $f(x) = 4x + 2$, $g(x) = 5x - x$ and $h(x) = x - 2$, which of the following represents $(h \circ (f \circ g))(x)$?

i) $-12x^2 - 4x$

ii) $12x^2 + 4x$

iii) $-12x^2 + 4x$

iv) $12x^2 - 4x$

2) If $f(x) = e^{5x}$, $g(x) = \log_e x$ and $h(x) = 27$, which of the following represents $g(f(h(x)))$?

i) 131

ii) 136

iii) 135

iv) 235

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