

Evaluating Composition of Two Functions

A) If $f(x) = x^2 + x + 1$, $g(x) = 9$ and $h(x) = -\frac{x^2}{3}$, evaluate the following.

1) $g\left(g\left(\frac{2}{7}\right)\right)$

2) $h\left(f\left(-\frac{1}{2}\right)\right)$

B) If $h(x) = \frac{1}{x}$, $g(x) = -8x^2 + 2x - 5$ and $f(x) = 6x + 1$, evaluate the following.

1) $(f \circ h)\left(-\frac{1}{8}\right)$

C) If $f(x) = \log_5 x$ and $g(x) = 3x - 1$

1) $(f \circ g)\left(\frac{2}{3}\right)$

3) Is $(f \circ g)\left(\frac{2}{3}\right) = (g \circ f)\left(\frac{2}{3}\right)$?

D) 1) If $g(x) = \sqrt{5x}$ and $h(x) = -x + 4$, which of the following represents $(h \circ g)\left(\frac{5}{4}\right)$?

i) $-\frac{81}{4}$

ii) $-\frac{93}{8}$

iii) $\frac{93}{8}$

iv) $\frac{81}{4}$

2) If $h(x) = 9x^3 - 3x + 1$ and $f(x) = 3x - 2$, which of the following represents $f\left(h\left(\frac{1}{6}\right)\right)$?

i) $\frac{5}{2}$

ii) $\frac{3}{8}$

iii) $-\frac{5}{2}$

iv) $-\frac{3}{8}$

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