

Evaluating Composition of Three Functions

A) If $f(x) = 9^{2x}$, $g(x) = 7x - 8$ and $h(x) = 3x$, evaluate the following.

1) $g\left(h\left(f\left(\frac{1}{4}\right)\right)\right)$

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

B) If $f(x) = 4x^2 - 3$, $g(x) = -3$ and $h(x) = x - 15$, evaluate the following.

1) $(f \circ g \circ f)\left(-\frac{3}{7}\right)$

C) If $f(x) = x^2 - x - 1$, $g(x) = 2x - 1$ and $h(x) = x + 5$, evaluate the following.

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

3) Is $(h \circ (g \circ f))\left(-\frac{1}{3}\right) = 1$?

D) 1) If $f(x) = 3x - 4$, $g(x) = 2x - 1$ and $h(x) = \sqrt{x} + 5$, which of the following represents $g\left(f\left(h\left(\frac{2}{3}\right)\right)\right)$?

i) 87

ii) -107

iii) -87

iv) 107

2) If $f(x) = 6 \log_e x$, $g(x) = e^{8x}$ and $h(x) = \frac{8}{x}$, which of the following represents $(h \circ f \circ g)\left(\frac{1}{2}\right)$?

i) $\frac{1}{3}$

ii) $-\frac{1}{3}$

iii) $\frac{2}{3}$

iv) $-\frac{2}{3}$

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Evaluating Composition of Three Functions

A) If $f(x) = 9^{2x}$, $g(x) = 7x - 8$ and $h(x) = 3x$, evaluate the following.

1) $g\left(h\left(f\left(\frac{1}{4}\right)\right)\right)$

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

55

$-\frac{65}{3}$ or $-21\frac{2}{3}$

B) If $f(x) = 4x^2 - 3$, $g(x) = -3$ and $h(x) = x - 15$, evaluate the following.

1) $(f \circ g \circ f)\left(-\frac{3}{7}\right)$

33

18

C) If $f(x) = x^2 - x - 1$, $g(x)$

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

$-\frac{20}{3}$ or -

or $-6\frac{2}{3}$

3) Is $(h \circ (g \circ f))\left(-\frac{1}{3}\right)$

true

D) 1) If $f(x) = 3x - 4$, $g(x) = 2x - 1x + 8$ and $h(x) = \sqrt{x} + 5$, which of the following represents $g\left(f\left(h\left(\frac{2}{3}\right)\right)\right)$?

i) 87

ii) -107

iii) -87

iv) 107 ✓

2) If $f(x) = 6 \log_e x$, $g(x) = e^{8x}$ and $h(x) = \frac{8}{x}$, which of the following represents $(h \circ f \circ g)\left(\frac{1}{2}\right)$?

i) $\frac{1}{3}$ ✓

ii) $-\frac{1}{3}$

iii) $\frac{2}{3}$

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