

## Evaluating Composition of Two Functions

A) If  $h(x) = \sqrt[3]{3x}$ ,  $f(x) = x + 2$  and  $g(x) = 3x^3 + 4$ , evaluate the following.

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

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

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B) If  $f(x) = x^2 + 9x$ ,  $g(x) = e^{5x}$  and  $h(x) = -13$ , evaluate the following.

1)  $(h \circ g)\left(\frac{9}{2}\right)$

2)  $(f \circ g)\left(\frac{1}{5}\right)$

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C) If  $h(x) = \sqrt{2x + 1}$  and

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

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

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D) 1) If  $f(x) = 4$  and  $g(x) = \frac{1}{x^2 - 9}$ , which of the following represents  $(g \circ f)\left(-\frac{4}{9}\right)$ ?

i) 1

ii) -10

iii) 10

iv) -1

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

i)  $-\frac{36}{25}$

ii)  $-\frac{39}{25}$

iii)  $\frac{36}{25}$

iv)  $\frac{39}{25}$

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