

## Evaluating Composition of Three Functions

A) If  $f(x) = 1$ ,  $g(x) = \frac{4}{x}$  and  $h(x) = x^5 - 2x^4 + x^3 - x^2 + 5$ , evaluate the following.

1)  $h(f(g(-4)))$

2)  $g(h(f(15)))$

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B) If  $f(x) = e^x$ ,  $g(x) = 8x$  and  $h(x) = x^3 + 3$ , evaluate the following.

1)  $(f \circ g \circ h)(0)$

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\_\_\_\_\_

C) If  $f(x) = x^4 + x$ ,  $g(x) =$  \_\_\_\_\_ and  $h(x) =$  \_\_\_\_\_, evaluate the following.

1)  $(h \circ (g \circ h))(0)$

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\_\_\_\_\_

3) Is  $(h \circ (g \circ h))(0) =$  \_\_\_\_\_

\_\_\_\_\_

D) 1) If  $f(x) = 4x + 5$ ,  $g(x) = x - 10$  and  $h(x) = -5$ , which of the following represents  $(f \circ h \circ g)(-17)$ ?

i) -3

ii) 16

iii) 7

iv) -7

2) If  $f(x) = \sqrt{3}$ ,  $g(x) = 7x^2 + 17$  and  $h(x) = -2x + 1$ , which of the following represents  $g(f(h(3)))$ ?

i) -17

ii) 38

iii) -38

iv) 17

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41

B) If  $f(x) = e^x$ ,  $g(x) = 8x$  and  $h(x) = x^3 + 3$ , evaluate the following.

1)  $(f \circ g \circ h)(0)$

 $e^{24}$ + 24

C) If  $f(x) = x^4 + x$ ,  $g(x) = 2x + 1$  and  $h(x) = x^2 - 3$ , evaluate the following.

1)  $(h \circ (g \circ h))(0)$

17676

3) Is  $(h \circ (g \circ h))(0) = 176$  true or false?

true

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