

Composition of Two Functions

A) If $f(x) = -x - 3$, $g(x) = x^2 - 7x - 14$ and $h(x) = -\frac{1}{x^2}$, find the following.

1) $h(h(x))$

2) $g(f(x))$

B) If $f(x) = \frac{\sqrt{x}}{3}$, $g(x) = 9x^4 + 9$ and $h(x) = -15$, find the following.

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

C) If $g(x) = \frac{2x}{x-1}$ and $h(x) = \frac{1}{x}$, find the following.

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

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

D) 1) If $f(x) = x + 8$ and $g(x) = 4^x - 6$, which of the following represents $f(g(x))$?

i) $14 - 4^x$

ii) $4^x + 14$

iii) $4^x - 2$

iv) $4^x + 2$

2) If $g(x) = e^{7x}$ and $h(x) = \log_e x$, which of the following represents $(h \circ g)(x)$?

i) e^7

ii) 7

iii) $7x$

iv) x

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Composition of Two Functions

A) If $f(x) = -x - 3$, $g(x) = x^2 - 7x - 14$ and $h(x) = -\frac{1}{x^2}$, find the following.

1) $h(h(x))$

2) $g(f(x))$

_____ $-x^4$ _____

_____ $x^2 + 13x + 16$ _____

B) If $f(x) = \frac{\sqrt{x}}{3}$, $g(x) = 9x^4 + 9$ and $h(x) = -15$, find the following.

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

_____ $\sqrt{x^4 +$ _____

_____ 15 _____

C) If $g(x) = \frac{2x}{x-1}$ and $h(x) = x$, find the following.

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

_____ x _____

_____ x _____

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

_____ true _____

D) 1) If $f(x) = x + 8$ and $g(x) = 4 - x$, which of the following represents $f(g(x))$?

i) $14 - 4^x$

ii) $4^x + 14$

iii) $4^x - 2$

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