Name: _____

Composition of Three Functions

A) If $f(x) = 2x^5 - x^2 + 12$, $g(x) = -x$ and $h(x) = \frac{x}{2}$, find the following.

1) $h(g(h(-2b)))$

2) $f(h(g(4u)))$

B) If $f(x) = \log_e x$, $g(x) = e^{2x}$ and $h(x) = 3x^2$, find the following.

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

C) If $f(x) = 4$, $g(x) = -x -$

1) $(h \circ (g \circ f))\left(-\frac{2r}{4}\right)$

3) Is $(h \circ (g \circ f))\left(-\frac{2r}{4}\right.$

D) 1) If $f(x) = 10 + x$, $g(x) = 5x$ and $h(x) = 2x^2 + 5$, which of the following represents $(f \circ h \circ g)(-s^2)$?

i) $-50s^4 + 15$ ii) $50s^4 + 15$ iii) $-50s^4 - 15$ iv) $50s^4 - 15$

2) If $f(x) = x - 7$, $g(x) = x^3 - x^2$ and $h(x) = -6x$, which of the following represents $h(f(g(t)))$?

i) $-6t^3 - 6t^2 + 42$ ii) $6t^3 + 6t^2 + 42$ iii) $6t^3 + 6t^2 - 42$ iv) $-6t^3 + 6t^2 + 42$

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Name: _____ **Answer key**

Composition of Three Functions

Sheet 3

A) If $f(x) = 2x^5 - x^2 + 12$, $g(x) = -x$ and $h(x) = \frac{x}{2}$, find the following.

1) $h(g(h(-2b)))$ — **$\frac{b}{2}$**

2) $f(h(g(4u)))$ — **$-64u^5 - 4u^2 + 12$**

B) If $f(x) = \log_e x$, $g(x) = e^{2x}$ and $h(x) = 3x^2$, find the following.

1) $(f \circ g \circ h)(a)$ — **$6a^2$**

2) **$48n + 48$**

C) If $f(x) = 4$, $g(x) = -x -$

1) $(h \circ (g \circ f))\left(-\frac{2r}{4}\right)$ — **20**

2) **20**

3) Is $(h \circ (g \circ f))\left(-\frac{2r}{4}\right)$ **ue**

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D) 1) If $f(x) = 10 + x$, $g(x) = 5x$ and $h(x) = 2x + 5$, which of the following represents $(f \circ h \circ g)(-s^2)$?

i) $-50s^4 + 15$ ii) ✓ $50s^4 + 15$ iii) $-50s^4 - 15$ iv) $50s^4 - 15$

2) If $f(x) = x - 7$, $g(x) = x^3 - x^2$ and $h(x) = -6x$, which of the following represents $h(f(g(t)))$?

i) $-6t^3 - 6t^2 + 42$ ii) $6t^3 + 6t^2 + 42$ iii) $6t^3 + 6t^2 - 42$ iv) ✓ $-6t^3 + 6t^2 + 42$