

COMPOSITE FUNCTIONS (NOT IN BOOK!)

BAKER #1: MIX ingredients + fill cupcake tins

BAKER #2: PUT CUPCAKES IN OVEN ... TAKE CUPCAKES OUT

BAKER #3: DECORATE CUPCAKES.

Composition of Functions

$f \circ g$ $f - g$ $f \cdot g$

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

"order matters"

$$f(x) = x + 3$$

$$g(x) = x^2$$

$$f(g(x)) = f(x^2) = x^2 + 3$$

$$f(g(x)) = x^2 + 3$$

$$f(g(26)) = 26^2 + 3 = 676 + 3$$

$x=26$ $f(g(26))$
 $g(26) = 26^2 = 676$
 $f(676) = 676 + 3 = 679$
 $f(g(26)) = 679$

$$f(x) = 2x - 1$$

$$f(g(x)) =$$

$$f(5x+3) = 2(5x+3) - 1$$
$$= 10x + 6 - 1$$

$$f(g(x)) = 10x + 5$$

(35)

$$g(x) = 5x + 3$$

$$f(g(3)) = f(5 \cdot 3 + 3)$$

$$f(18) = 2(18) - 1$$
$$= 36 - 1$$

$$= 35$$

First Example

$$f(g(x)) = x^2 + 3$$

$$g(f(x)) = g(\underline{x+3})$$

$$f(x) = x + 3$$

$$g(x) = x^2$$

$$= (x+3)^2$$

$$(\underline{x+3})(\underline{x+3})$$

$$\underline{x^2 + 6x + 9}$$

$$f(g(x)) \neq g(f(x))$$

$$\begin{aligned} g(g(x)) &= g(x^2) \\ &= (x^2)^2 \\ &= x^4 \end{aligned}$$

$$g(x) = x^2$$

Option 1: Worksheet 1 1-10

Option 2: Composition Function Worksheet 1-10

Option 3: Composition Worksheet

Pick 5 - Section I

Pick 5 - Section II

Answer 5/29