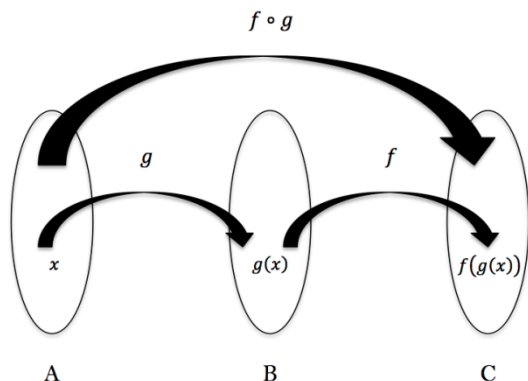


Name _____ Date _____ Period _____

COMPOSITION OF FUNCTIONS WORKSHEET



Example:

$$\begin{aligned}
 f(x) &= 2x \\
 g(x) &= x + 3 \\
 f(g(x)) &= 2(x + 3)
 \end{aligned}$$

$\begin{matrix} \uparrow & \uparrow \\ \text{outside} & \text{inside} \\ f(x) & g(x) \end{matrix}$

1) Explain what a composite function is in terms of input and output.

2) Interpret the meaning of $f(g(x))$ in terms of input and output.

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

3) $f(g(x))$

4) $g(h(x))$

5) $f(h(x))$

6) $g(f(x))$

7) $f(g(2))$

8) $h(f(-3))$

9) $g(g(0))$

10) $f(f(x))$

11) $g(h(-1))$

- 12) Consider the demand equation $p(x) = -\frac{1}{15}x + 30$; $0 \leq x \leq 450$, where p represents the price and x the number of units sold. Write an equation for the revenue, R , if the revenue is the price times the number of units sold. What price should the company charge to have maximum revenue?
- 13) The service committee wants to organize a fund-raising dinner. The cost of renting a facility is \$300 plus \$5 per chair or $C(x) = 5x + 300$, where x represents the number of people attending the fundraiser. The committee wants to charge attendees \$30 each or $R(x) = 30x$. How many people need to attend the fundraiser for the event to raise \$1,000?