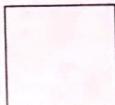**Name:** _____   **Unit 5:** Polynomial Functions

Date: _____ **Bell:** _____   **Homework 7:** Operations on Functions
& Compositions of Functions

Directions: Given $f(x) = 2x^2 - 9x + 2$, $g(x) = 1 - 6x$, and $h(x) = x^2 - 4$, find each function.
Indicate any restrictions in the domain.

1. $(f - g)(x)$	**2.** $\left(\dfrac{f}{h}\right)(x)$
3. $(g + f)(x)$	**4.** $(f \cdot h)(x)$
5. $\left(\dfrac{h}{g}\right)(x)$	**6.** $(g \bullet h)(x)$
7. $(f \bullet g)(x)$	**8.** $(h + f)(x)$

Directions: Using the functions above, find each function value.

9. $(h - g)(-7)$	**10.** $(f - h)(2)$

USE SYNTHETIC DIVISION ON #7-8.

7. $(x^3 - 16x + 9) \div (x - 4)$

7. _____

8. _____

9. _____

10. _____

11. _____

8. $(k^4 + 4k^3 - 20k^2 - 39) \div (k + 7)$

12. _____

13. _____

14. _____

Given $f(x) = x + 5$, $g(x) = x^2 - 9$, and $h(x) = x^2 - 10x + 7$, find each function. Indicate any restrictions in the domain.

9. $(g - h)(x)$

10. $(f \circ g)(x)$

11. $\left(\dfrac{h}{f}\right)(x)$

12. $(g \cdot f)(x)$

Find each function value.

13. $(h - f)(-3)$

14. $(h + g)(5)$