Math 3 Functions Review Day Two Name _____

Factor each polynomial and answer the questions that follow.

1. $x^2 - 7x - 18$ What are the solutions to the quadratic function?	2. $7x^2 + 9x$ What shortcut did you use to factor? What are the solutions to the quadratic function?
3. $7x^2 - 31x - 20$ What are the solutions to the quadratic function?	4. $28x^4 + 16x^3 - 80x^2$ What should you do before using the diamond?
5. $x^2 + 16x + 64$ What special type of quadratic is this? What shortcut could you have used instead of using the diamond?	6. $9x^2 - 1$ What special type of quadratic is this? What shortcut could you have used instead of using the diamond?
7. $8x^3 - 64x^2 + x - 8$ What method did you use to factor the cubic function?	8. $x^4 - 7x^2 - 8$ Can you factor out a GCF? What method did you use to factor the quartic function?

Divide each polynomial. You may use long division or synthetic division.

9. $(2x^2 - 17x - 38) \div (2x + 3)$

10. $(x^3 + 7x^2 + 14x + 3) \div (x + 2)$

Use the remainder theorem to evaluate each function at the given value.

11. $f(x) = -x^3 + 6x - 7 \; at \; x = 2$

12. $x^5 - 47x^3 - 16x^2 + 8x + 52 \; at \; x = 7$

Perform the appropriate operation on each of the following rational expressions, simplify answers and list restrictions.

13. $\frac{x}{x^2-x-30} + \frac{1}{x+5}$	14. $\frac{x}{x^2-x-30} - \frac{1}{x+5}$
15. $\frac{x}{x^2-x-30} \times \frac{1}{x+5}$	16. $\frac{x}{x^2-x-30} \div \frac{1}{x+5}$