

Name: _____

(20 points) Books, notes, and calculators are ***not*** allowed. *Show all your work and clearly indicate your answers.* Good Luck!

Perform the indicated operations and simplify.

1. (1 pts) $5x^4 \cdot (2x^3)$

2. (2 pts) $(x - 3)(2x + 5)$

3. (3 pts) $(3a + b)(a + b + ab)$

4. (3 pts) $(8x^2 - 4xy^2 + 8x) \div (4xy)$

Factor the following.

5. (3 pts) $a^3 - 2a^2 - 5ax + 10x$ [by grouping]

6. (3 pts) $2x^2 + x - 6$

7. (3 pts) $x^5 - 3x^4 - 4x^3$

8. (2 pts) $x^2 - 100$

BONUS: For each of the above problems, multiply out *your answer* and simplify. Then based on ***this*** result, clearly state whether you have factored correctly.

(5). Multiply and simplify:

Did you factor correctly?

(6). Multiply and simplify:

Did you factor correctly?

(7). Multiply and simplify:

Did you factor correctly?

(8). Multiply and simplify:

Did you factor correctly?