Simplifying Expressions with Multiple Index Laws

Name: _____ Date: _____

Index Laws Reminder:

- $a^m \times a^n = a^{m+n}$
- $a^m \div a^n = a^{m-n}$
- $(a^m)^n = a^{mn}$
- $a^0 = 1$

Part A: Simplify these expressions

1. $x^5 \times x^3 \div x^2$ = _____
2. $(y^4)^2 \times y^3$ = _____
3. $a^8 \div a^3 \div a^2$ = _____
4. $(m^3)^4 \div m^7$ = _____
5. $p^6 \times (p^2)^3$ = _____
6. $b^{10} \div (b^2)^3$ = _____

Part B: Simplify these more complex expressions

7. $(x^3)^2 \times x^4 \div x^5$ = _____
8. $t^9 \div (t^2)^3 \times t^4$ = _____
9. $(k^5 \times k^3)^2$ = _____
10. $(n^8 \div n^2)^3$ = _____
11. $c^{12} \div (c^3)^2 \div c^3$ = _____
12. $(z^4)^3 \times z^5 \div (z^2)^4$ = _____

Part C: Challenge questions

13. $(a^3 \times a^5)^2 \div (a^4)^3$ = _____
14. $r^{15} \div (r^3 \times r^2)^2$ = _____
15. $(d^6 \div d^2)^3 \times d^4 \div d^{10}$ = _____