

In PreCalculus, there is a considerable amount of factoring, BUT we will have to factor expressions that look like these:

- a. $\cos^2 x - \sin^2 x \cdot \cos^2 x$... *greatest common factor*
- b. $\sec^4 x - \tan^4 x$... *a difference of two squares*
- c. $2 \cos^2 x - 9 \cos x - 5$... *a "quadratic-style" trinomial expression*

So, let's practice basic factoring first!

Factor the following completely.

1. $5x^2 - x = x(5x - 1)$	2. $7y^3 + 14y^2$ $7y^2(y + 2)$
3. $9x^3y^2 - 6x^2y^3 + 3x^3y^3$ $3x^2y^2(3x - 2y + xy)$	4. $x^2 - 16$ $(x + 4)(x - 4)$
5. $a^2 - 81b^2$ $(a + 9b)(a - 9b)$	6. $6x^4 - 6y^4$ $6(x^4 - y^4)$ $6(x^2 - y^2)(x^2 + y^2)$ $6(x + y)(x - y)(x^2 + y^2)$
7. $w^2 - 14w + 45$ $(w - 9)(w - 5)$	8. $x^2 + 2x - 24$ $(x + 6)(x - 4)$
9. $r^4 + 12r^2 + 20$ $(r^2 + 10)(r^2 + 2)$	10. $k^2 - k - 20$ $(k - 5)(k + 4)$
11. $2x^2 + 5x + 3$ $(2x + 3)(x + 1)$	12. $5x^2 - 17x + 6$ $(5x - 2)(x - 3)$
13. $2x^2 - 9x - 5$ $(2x + 1)(x - 5)$	14. $x^3 + x^2 + x + 1$ $x^2(x + 1) + 1(x + 1)$ $(x + 1)(x^2 + 1)$
15. $x^3 + 2x^2 - x - 2$ $x^2(x + 2) - 1(x + 2)$ $(x + 2)(x^2 - 1) = (x + 2)(x + 1)(x - 1)$	16. $3x^2 - 5x - 2$ $(3x + 1)(x - 2)$
17. $x^3y + 2x^2y$ $x^2y(x + 2)$	18. $x^4 + x^2 - 42$ $(x^2 + 7)(x^2 - 6)$