

FYI**Polynomials - JUST THE FACTS**

Polynomial	an expression whose terms are in the form ax^k , where k is a non-negative integer, is a polynomial in one variable .
Degree	The degree of a term ax^k is the value of the integer, k . For the term $5x^3$, <i>the degree is 3</i> .
Degree of a Polynomial	The degree of a polynomial is the largest degree of any one single term. For the polynomial $5x^2 - 3x + 6$, the term with the largest degree is $5x^2$, so the degree of the polynomial is 2.
Polynomial in Standard Form	A polynomial written with its terms in descending order of degree (i.e. from largest to smallest) is said to be in standard form . The polynomial: $15x^2 - 8x - 14x^3 + 7$ looks like this in standard form: $-14x^3 + 15x^2 - 8x + 7$
Coefficient	The number a is the coefficient of the term ax^k . When a polynomial is written in standard form, the coefficient of its first term is the leading coefficient of the polynomial. In the polynomial: $6x^2 - 9x + 5$ 6 is the leading coefficient.
Monomial	A polynomial with just one term. Example: $15x^2$
Binomial	A polynomial with just two terms. Example: $15x^2 + 7x$
Trinomial	A polynomial with just three terms. Example: $15x^2 + 7x + 12$
Quadratic Polynomial	A polynomial in which the leading term has a degree of 2. Example: $2x^2 - 7x + 9$ or <i>any of the above</i>

1. Simplify: $(-4x^4 - 6x + 2) + (-3x^2 + 3x - 10)$.

1. _____

2. Simplify: $(5z^3 + 4z^2 - 6) - (-z^3 - 3z - 6)$

2. _____

3. Simplify: $-5x^2(3x^2 + 7x - 4)$

3. _____

4. Simplify: $(2x - 5)(3x + 4)$

4. _____

5. Simplify: $(-7x^2 + 4x - 6)(-3x - 5)$

5. _____

6. Write $(2c - 7)^2$ as a quadratic trinomial.

6. _____

7. Simplify: $(5x + 7)(5x - 7)$

7. _____

8. Simplify: $(4x + 3y)(2x - 5y)$

8. _____

For factoring problems:

-write answers in fully factored form

- if an expression cannot be factored, write "Prime"

9. Factor the expression: $f^2 - 144$

9. _____

10. Factor the expression: $f^2 + 144$

10. _____

11. Factor the expression: $f^2 + 7f - 144$

11. _____

12. Factor the expression: $f^2 + 24f + 144$

12. _____

13. Factor the expression: $x^2 - 33x + 32$

13. _____

14. Factor the expression: $x^2 - 32x + 32$

14. _____

15. Factor the expression: $49x^2 + 169$

15. _____

16. Factor the expression: $49x^2 - 169$

16. _____

17. Factor the expression: $3x^2 + 14x - 5$

17. _____

18. Factor the expression: $7x^2 + 17x - 6$

18. _____

19. Factor the expression: $64 - 32x + 4x^2$

19. _____

20. Factor the expression: $3x^2 - 33x + 72$

20. _____

21. Factor the expression: $x^2 + 2xy + y^2$ 21. _____

22. Factor the expression: $x^2 - y^2$ 22. _____

23. Factor the expression: $9x^2 - 25y^2$ 23. _____

24. Factor the expression: $16x^4 - 81y^4$ 24. _____
(Hint: There are more than just 2 binomial factors!)

25. Draw an area model below to show the multiplication of: $(3x^3 + 6x - 3)(4x^2 + 5x - 4)$