

A21 page 1

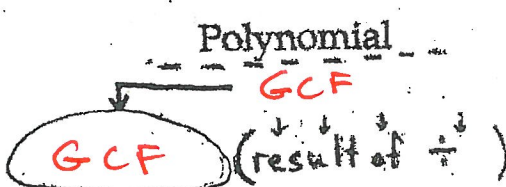
Things added together = terms Things multiplied together = factors

Canceling, any number divided by itself = _____

You may cancel any common _____ but not common _____.

Undistributing = f---ing

The first step of factoring is to factor out the GCF if possible.



factor: $6ab^2 - 8a^2b$

$2ab(3b - 4a)$

$14p^3q^3 - 21p^2q^2 + 35pq$

Sometimes the GCF will be a polynomial (ex. $(x-3)$). But be on the lookout for opposites you can make them the same by multiply by (-1) .

Factor: $x(x+2y) - (x+2y)$

$(x+2y)(x-1)$

$2r(r-s) + s(s-r)$

$2r(r-s) - s(r-s)$

$(r-s)(2r-s)$

For four terms you need to factor by grouping (pairs). Factor out the GCF for the 1st pair of terms and 2nd pair of terms separately.

Then factor by polynomial factoring.

Factor: $rs + 5r + st + 5t$

$r(s+5) + t(s+5)$

$(s+5)(r+t)$

$3a^3 + a^2 + 6a + 2$

Then to factor polynomials of the form $ax^2 + bx + c$ we follow these five steps.

1. Factor out GCF (if possible)

2. Factors of $a \cdot c$ "+" to b



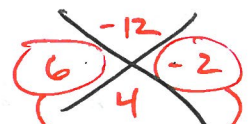
3. use to write $ax^2 + bx + c$ as 4 terms $ax^2 + 0x + 0x + c$

4. Factor by Grouping (pairs)

5. Polynomial Factoring (then we can check by distributing)

Factor: $8c^3 + 8c^2 - 6c$

$2c(4c^2 + 4c - 3)$



$2c(4c^2 + 6c - 2c - 3)$

$2c[2c(2c+3) - 1(2c+3)]$

$2c(2c+3)(2c-1)$

check $2c[4c^2 - 2c + 6c - 3]$

$2c[4c^2 + 4c - 3]$

$8c^3 + 8c^2 - 6c$

A21 cont.

Overall Factoring Rules

The first step is to always Factor out any Greatest Common Factors if possible.

Next we ask ourselves How Many Terms

Complete the procedures below.

1st Factor by Grouping
(GCF from pairs)

$ax^2 + bx + c$

$a \cdot c$ that adds to b

rewrite as 4 terms

ex. $ax^2 + 0x + 0x + c$

* unless $a = 1$

Then just $(x \ 0)(x \ 0)$

Is it _____

Then _____

Remember _____

is forever.

2nd Polynomial Factoring

1-2 Factor. Show and label all 5 steps. Box your answer.

1. $2x^2 + 11x + 12$

2. $12x^5 - 20x^4 + 3x^3$

3-9 Factor completely. Box your answer.

3. $b^2 - 49$

4. $4c^2 + 81$

5. $16x^2 - 9y^6$

6. $x^2 - 10xy + 21y^2$

7. $2a^2 - 4a + 2$

8. $x^5y - xy^5$

9. $x(x - 2y) - (2y - x)$