



Challenging Factoring Completely Problems

Part II

Video Notes

[Video Link](#)

Challenging Factoring Completely Problems

What background knowledge will I need?

- Factoring Completely

Factor:

$$3b^4 - 15b^3c + 60bc^3 - 12b^2c^2$$

GCF:
 $3b(b^3 - 5b^2c + 20c^3 - 4bc^2)$

Factor by Grouping:

$$3b(b^3 - 5b^2c + 20c^3 - 4bc^2)$$

$$3b(b^2(b-5c) + 4c^2(5c-b))$$

$$3b(b^2(b-5c) - 4c^2(-5c+b))$$

$$3b(b-5c)(b^2 - 4c^2)$$

Difference of perfect squares:

$$3b(b-5c)(b+2c)(b-2c)$$

Questions to ask yourself when factoring:

✓ → Is there a GCF?

→ Is it a difference of perfect squares?

→ Is it a factorable trinomial?

→ Can I factor by grouping?

→ Is it completely factored? **Yes!**

Factor out a negative

Factor:

$$(x^2 - 3x)^2 - 14(x^2 - 3x) + 40$$

Factor Trinomial:

Let $u = x^2 - 3x$ (substitution)

$$u^2 - 14u + 40$$

$$(u - 4)(u - 10)$$

Substitute $x^2 - 3x$ in for u .

$$(x^2 - 3x - 4)(x^2 - 3x - 10)$$

	40
1	40
2	20
4	10
5	8

Factor trinomials:

$$(x + 1)(x - 4)(x - 5)(x + 2)$$

Questions to ask yourself when factoring:

- Is there a GCF?
- Is it a difference of perfect squares?
- Is it a factorable trinomial?
- Can I factor by grouping?
- Is it completely factored?

Yes!