

Pre-Algebra

Unit 13 Review – Factoring Polynomial Expressions (3 METHODS)

GCF FACTORING

Factor each polynomial by factoring out the **GCF**.

1. $3x + 12$

2. $16x^2 - 12x + 24$

3. $25x - 50y$

4. $40x^2 - 100x - 10$

Example

Factor $5x^2 + 15x - 5$ **GCF: 5**

$$\frac{5x^2}{5} + \frac{15x}{5} - \frac{5}{5} \quad \text{Divide each term by 5}$$

$$1x^2 + 3x - 1 \quad \text{Result}$$

Factored Form: $5(x^2 + 3x - 1)$

AM FACTORING

Example

Factor $x^2 - 7x + 12$

$x^2 - 7x + 12$ What numbers multiply to 12?

$(x \quad)(x \quad)$ Which pair adds to -7?

1, 12 -1, -12

2, 6 -2, -6

3, 4 **-3, -4**

Factored Form: $(x - 3)(x - 4)$

Factor each trinomial into two binomials by using the **AM** method.

5. $x^2 + 16x + 15$

6. $x^2 + 6x - 7$

7. $x^2 + x - 56$

8. $x^2 - 14x + 40$

9. $x^2 - 9x - 36$

10. $x^2 - 23x + 42$

D.O.T.S FACTORING

Factor each binomial (**D.O.T.S**) into two binomials.

11. $x^2 - 64$

12. $x^2 - 144$

13. $x^2 - 81$

14. $4x^2 - 25$

15. $36x^2 - 1$

16. $100x^2 - 9$

Example

Factor $49x^2 - 121$ $\sqrt{49x^2} = 7x$

$(\quad + \quad)(\quad - \quad)$ $\sqrt{121} = 11$

Factored Form: $(7x + 11)(7x - 11)$