8 Algebra CC

Essential Question: What does it mean to factor completely?

Do Now: Review the examples below that have been factored completely.

| $2x^2 - 14x + 24$ |
|--------------------|
| $2(x^2 - 7x + 12)$ |
| 2(x-3)(x-4) |
| |
| |
| |

| Polynomial Expression: | $2x^2 - 32$ |
|----------------------------|---------------|
| Step 1: Factor out the GCF | $2(x^2 - 16)$ |
| Step 2: Factor using DOTS | 2(x-4)(x+4) |

Complete factorization: 2(x-4)(x+4)

FACTORING COMPLETELY

- 1) Always factor out the GCF first.
- 2) After the GCF has been factored out, determine if the remaining polynomial can be factored using DOTS or the AM method.

Factor each polynomial expression completely.

1) $2y^2 + 2y - 4$ **2)** $5m^2 - 30m + 40$



3) $2r^2 + 12r + 10$



Factor out the GCF Factor AM Factor DOTS $x^2 + bx + c$ $a^2 - b^2$

Don't

FACTOR OUT

GCF FIRST!

4) $4x^2 - 24x - 108$

6)
$$4a^2 - 36$$

| 7) $5x^2 - 500$ | 8) $3x^2 + 27x + 54$ |
|------------------------|-----------------------------|
|------------------------|-----------------------------|

9)
$$2x^2 - 16x + 14$$
 10) $4x^2 + 12x - 16$

11)
$$7a^2 - 7a - 42$$
 12) $3x^3 - 6x^2 - 24x$



15)
$$x^4 - 14x^2 - 32$$
 16) $x^4 - 10x^2 + 9$



When factoring a binomial or trinomial, always factor out the ______first.

Think about this... Is the polynomial expression $2x^2 - 5x - 3$ factorable? How can we find out?