Warm Up

Simplify

1) $(4x - 7)^2$

$16x^2 - 56x + 49$

Change to Radical form

2) $(7x^2)^{1/6}$ $\sqrt[6]{(7x^2)^1} = \sqrt[6]{7x^2}$

3-1 Factoring (GCF and Grouping)

Objectives:

I can factor the greatest common factor out of an expression.
I can factor an expression by grouping.

Vocabulary: Factors, Greatest Common Factor

Find the greatest common factor (GCF) of the terms

$4x, 12$

$2 \cdot 2 \cdot x$

$3 \cdot 2 \cdot 2$

4

$6x^3, 12x^2, 15x$

$3 \cdot 2 \cdot x \cdot x \cdot x$

$2 \cdot 2 \cdot x \cdot x$

$5 \cdot 3 \cdot x$

$3x$

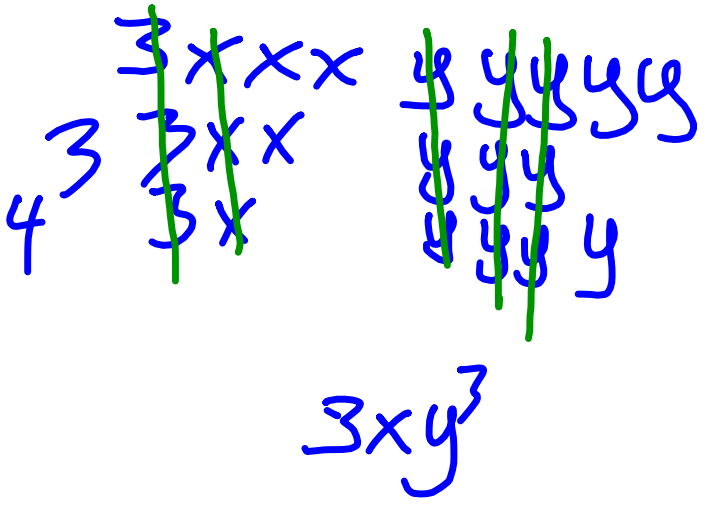
$4x^3y^4, 8x^2y^3, 12xy^2$

$4xy^2$

You Try

Find the greatest common factor (GCF) of the terms

$$3x^3y^5, 9x^2y^3, 12xy^4$$



$3xy^3$

Factor out the GCF

$$4a^2b^2 - 10ab^3 + 18a^3b^4$$

→ $2 \cdot 2aabb$

$5 \quad 2 \quad a \quad bbb$

$9 \quad 2 \quad aaa \quad bbbbb$

$$2ab^2(2a - 5b + 9a^2b^2)$$

You Try

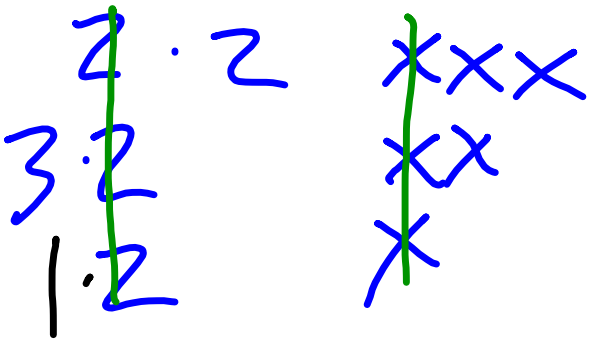
Factor out the GCF

$$\frac{6y^3}{2y} - \frac{14y^2}{2y} + \frac{10y}{2y}$$

$$2y(3y^2 - 7y + 5)$$

Factor out the GCF

$$4x^3 + 6x^2 + 2x$$

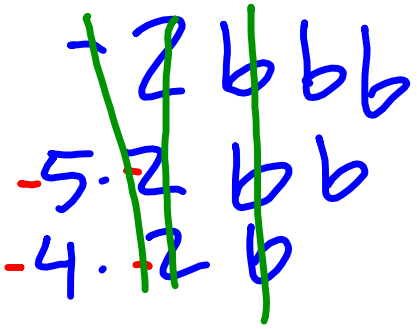


$$2x(2x^2 + 3x + 1)$$

Factor out the GCF

$$-2b^3+10b^2+8b$$

$-2b(b^2-5b-4) = 2b(-b^2+5b+4)$



You Try

Factor out the GCF

$$-5y^2+10y$$

$5y(-y+2)$

$-5y(y-2)$