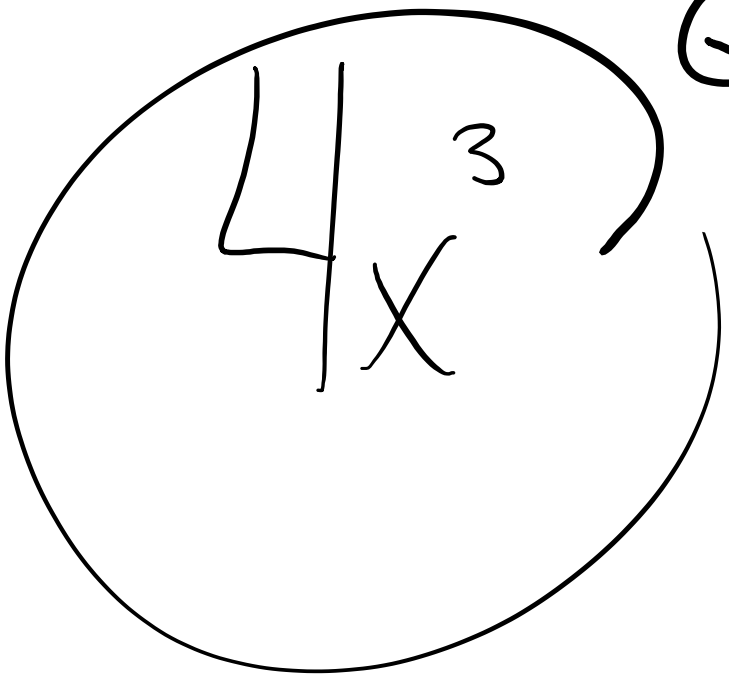
FIND THE GCF OF:

- $8x^3$ and $12x^5$

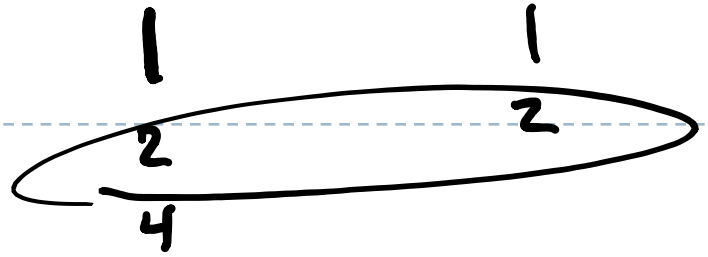
GCF: 8 & 12 is 4

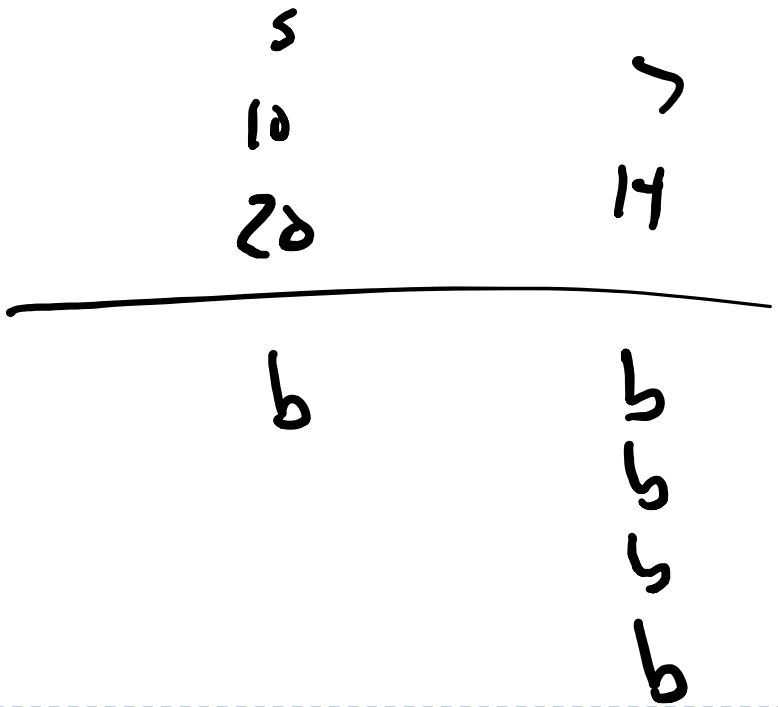
GCF x^3 & x^5 is x^3



FIND THE GCF OF:

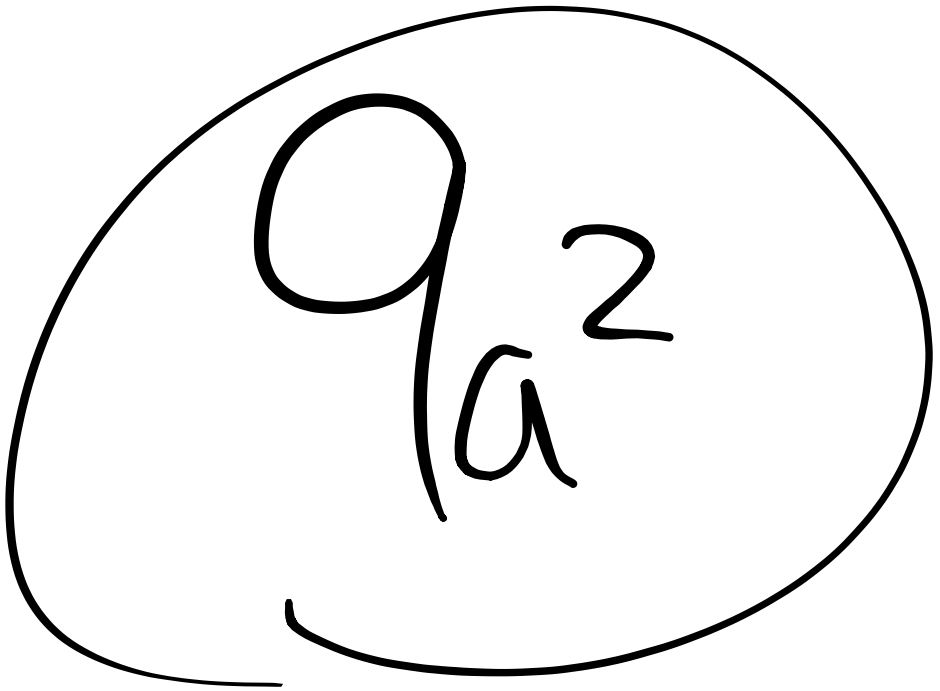
- 20b and $14b^4$





FIND THE GCF OF:

- $9a^2$ and $27a^5$

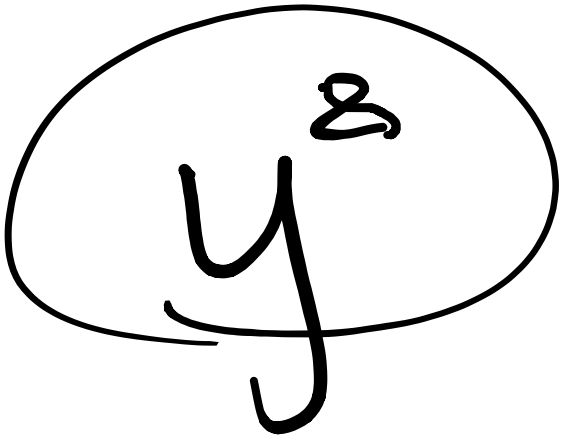


FIND THE GCF OF:

- a^{50} and a^{75}

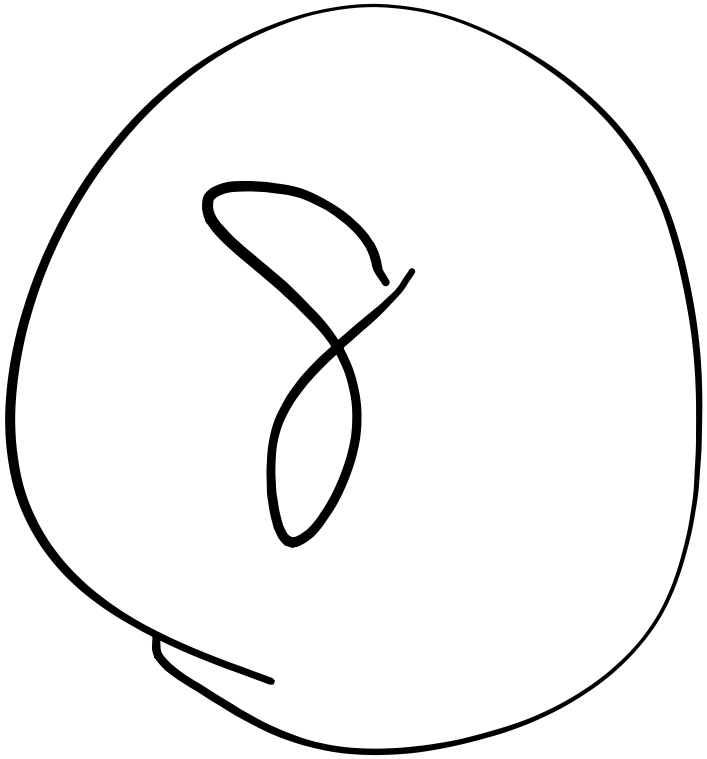
FIND THE GCF OF:

- $28y^{10}$ and $9y^{8}$



FIND THE GCF OF:

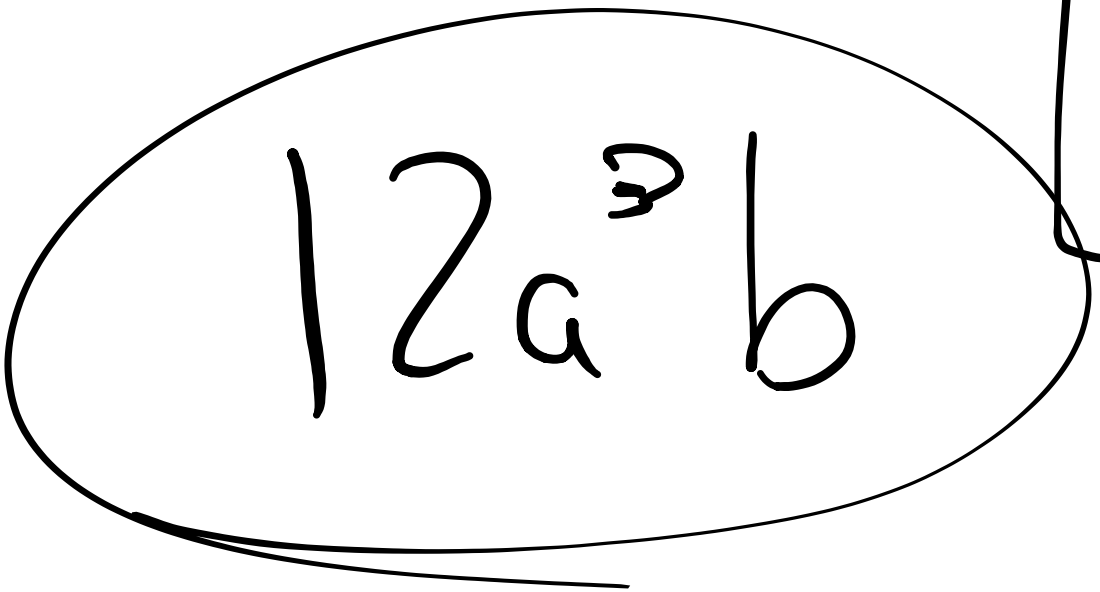
- $16p^2$ and $24q^3$

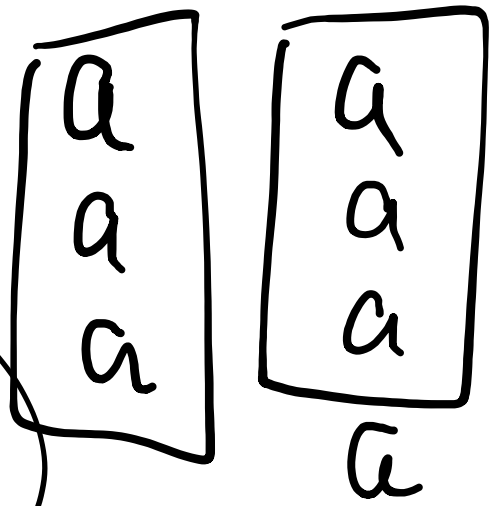


FIND THE GCF OF:

$\frac{a^4}{a^3} = a$

- $36a^3b^5$ and $60a^4b$





Factoring By GCF

- Recall that the Distributive Property states that $ab + ac = a(b + c)$. The Distributive Property allows you to "factor" out the GCF of the terms in a polynomial to write a factored form of the polynomial.

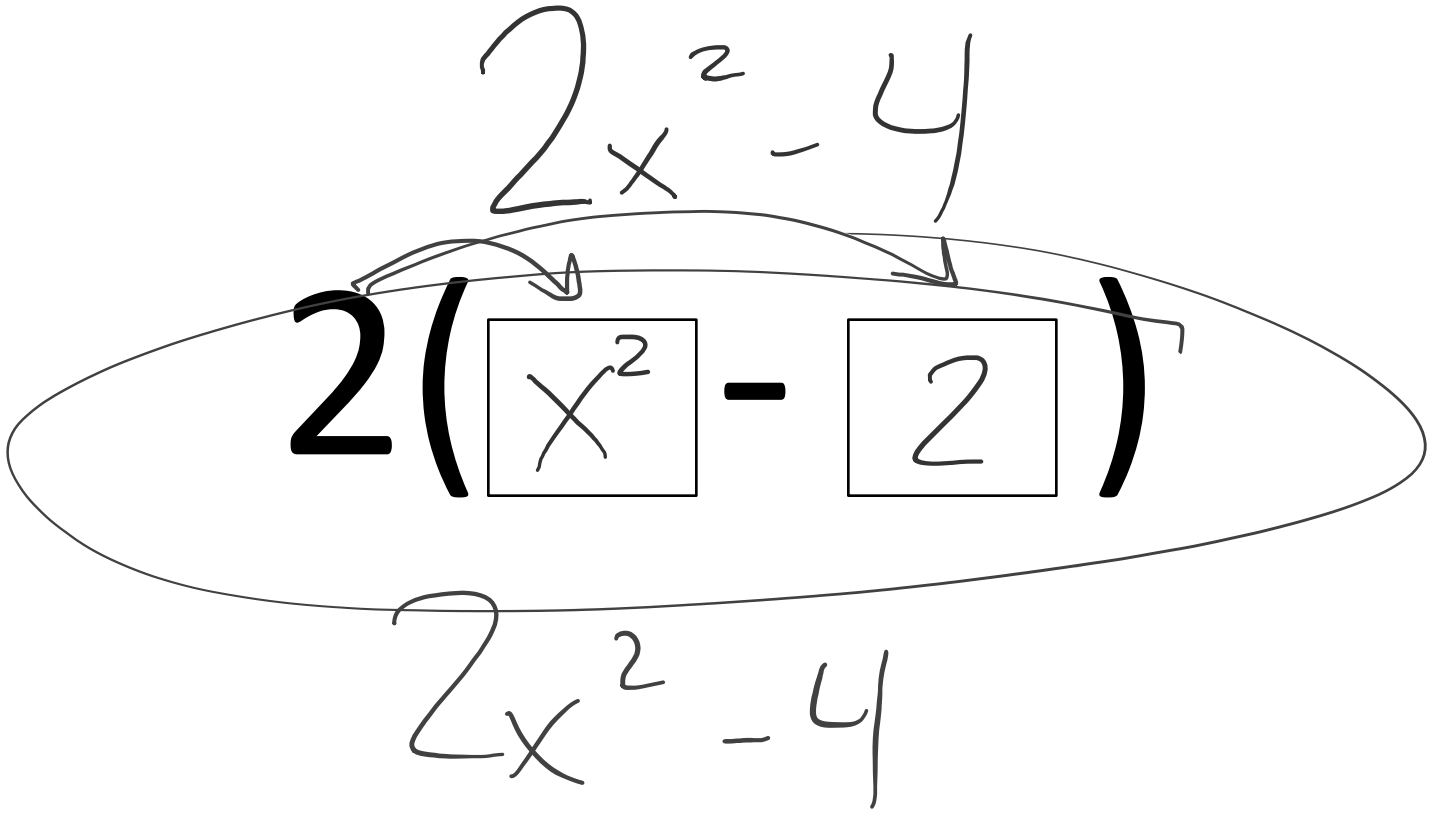
- Today we will be "reverse distributing."

A Polynomial to Consider…

$$2x^2 - 4$$

What is the GCF of the two terms?

If I factor out 2…
from $2x^2 - 4$



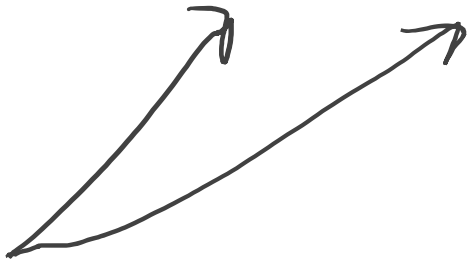
A Polynomial to Consider…

$$-14x - 12x^2$$

What is the GCF of the two terms?

If I factor out -2x…

from $-14x - 12x^2$



$-2x(\square + \square)$

7 + 6x

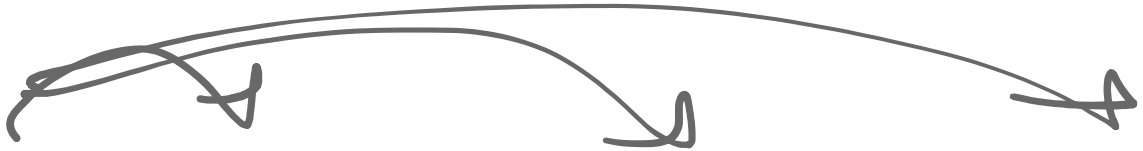
A Polynomial to Consider…

$$8x^3 - 4x^2 - 16x$$

What is the GCF of the three terms?

If I factor out 4x…

from $8x^3 - 4x^2 - 16x$



$4x(\square 2x^2 - \square x - \square 4)$

A Polynomial to Consider…

$$8x^4 + 4x^3 - 2x^2$$

What is the GCF of the three terms?

If I factor out $2x^2$…

from $8x^4 + 4x^3 - 2x^2$

$2x^2(\square - \square)$

Factor:

1. $4x^2 - 3x$ $x(4x-3)$

2. $10y^3 + 20y^2 - 5y$ $5y(2y^2+4y-1)$

3. $-8x^2 - 12x$ $-4x(2x+3)$

Sometimes the GCF of terms is a binomial. This GCF is called a common binomial factor. You factor out a common binomial factor the same way you factor out a monomial factor.

$$3x(x+2)+5(x+2)$$

$6(4)+5(4)$

GCF: (x+2)

$$(x+2)(3x+5)$$

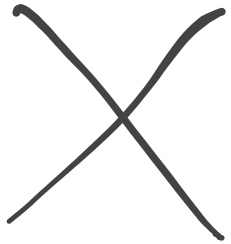
$$3x(x+2)+$$

$$-2b(b^2 + 1) + (b^2 + 1)$$

$$7x(2x + 3) + (2x + 3)$$

$$5x(5x - 2) - 2(5x - 2)$$

$$4z(z^2 - 7) + 9(2z^3 + 1)$$



$$3x(y + 4) - 2y(x + 4)$$

Factor by Grouping

- Factor out the GCF of each pair of terms.
- Combine by factoring out the common binomial factor.

Factor by Grouping

$$6h^4 - 4h^3 + 12h - 8$$

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

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

$$5y^4 - 15y^3 + y^2 - 3y$$

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

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

$$6b^3 + 8b^2 + 9b + 12$$

$$2b^2(3b+4) + 3(3b+4)$$

$$(2b^2+3)(3b+4)$$

$$6b^3 + 8b^2 + 9b + 12$$

$$4r^3 + 24r + r^2 + 6$$

$2x^3 - 12x^2 + 18 - 3x$

$-3x \quad +18$

$2x^2(x-6) - 3(x-6)$

$(2x^2-3)(x-6)$

$$15x^2 - 10x^3 + 8x - 12$$

$$8y - 8 - x + xy$$

$$4y^2 + 8ay - y - 2a$$

$$x^3 - 4x^2 + 3x - 12$$

$$20 - 15x - 6x^2 + 8x$$

$$ab + bc + ad + cd$$

$$b(a+c) + d(a+c)$$

$$(b+d)(a+c)$$

Homework

Worksheet