Factoring!

Breaking expressions into parts

Opposite of Expanding

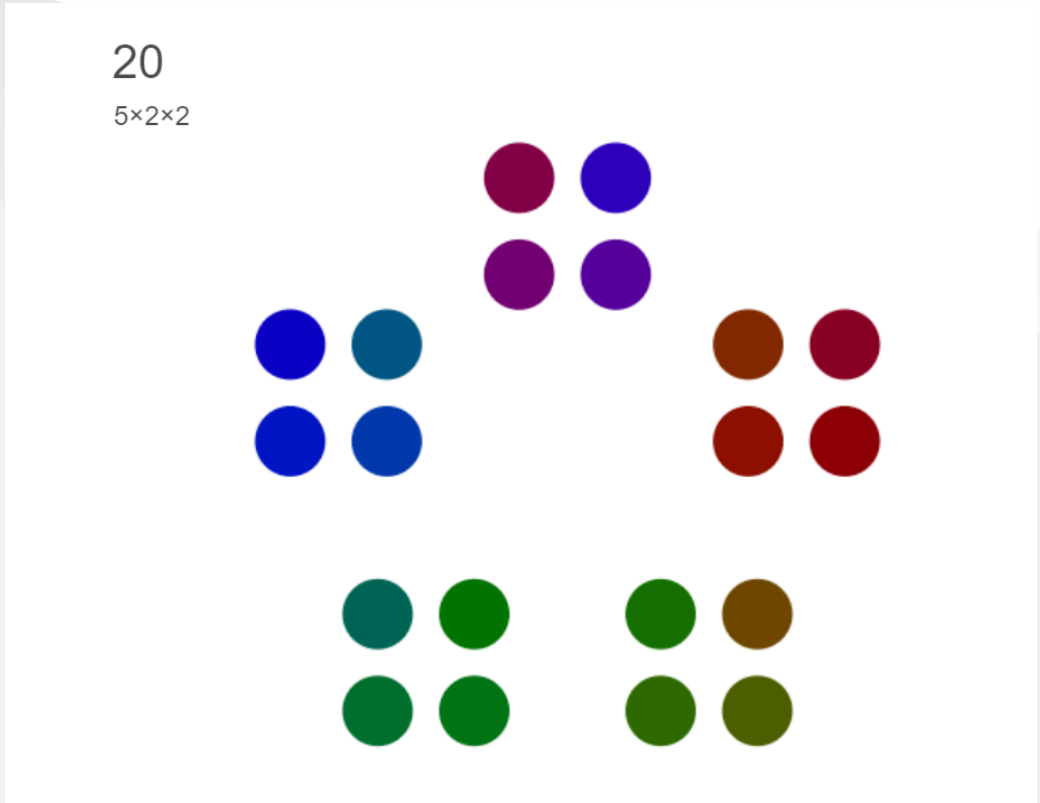
Let's start with HCF

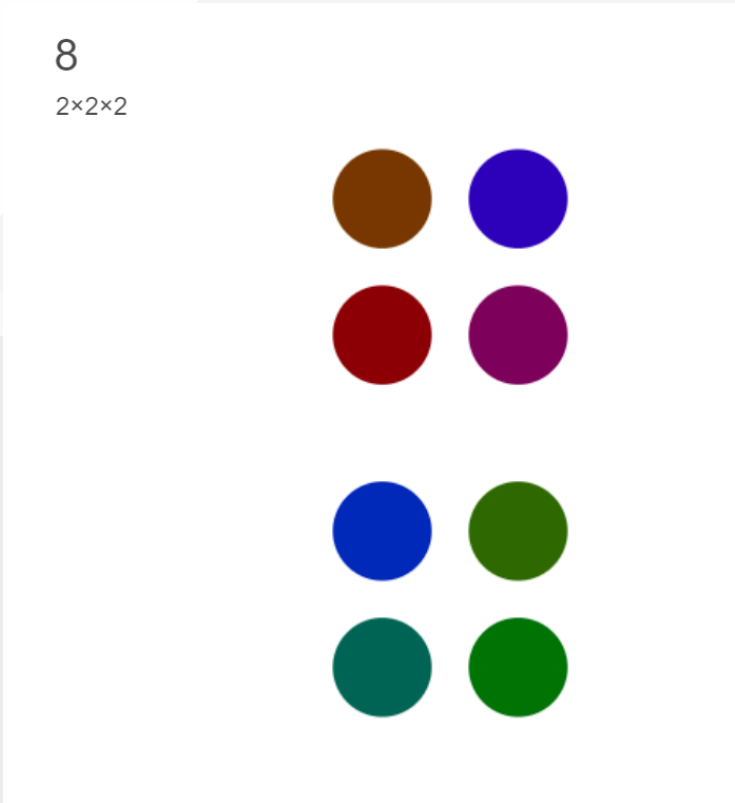
What's an HCF??

- **Highest Common Factor**
  Let's break each of these words down

Watch numbers dance

- An animation of prime factors into patterns
  (In maths we like patterns)





What does this have to do with Factoring?

Right now we're factoring expressions like *20x + 12*

- What's the HCF of 20 and 12?
- So we'll take 4 common
- Then we have:
  - 20x + 12 = 4(5x + 3)
- And that's our factored expression!

Quicker ways: Divisibility rules

How do you tell if a number is divisible by:

- 2
- 3
- 5
- 4
- 6
- 10

Summary: Rules 1 to 12

Examples: We Do

- $15x + 5$
- $8x + 20$
- $16x + 10$
- $6x + 18$
- $33 + 110y$

Examples: You Try

- $18x + 9$
- $8 + 28q$
- $20q + 25$
- $18r + 9d$

Extra: Series of Lines

Can a pronumeral be a common factor?

- Yes!
- Just as if a pronumeral were a prime
- Example: x^2+7x

  = x(x + 7)

3 types of quadratics to factor

Name	Example	
Monomial	x^2	
Binomial	x^2+7x	2 terms
Trinomial	$x^2+7x+10$	3 terms (don't worry about this yet)

- What's a quadratic?

Examples

$2x^2 + 4$

$x^2 + 5x$

$9x^2 - 3x$

$10x^2 + 25x$

$6x^2 - 18$