

# Warm-up

List all factors.

①  $25 \div 30$

1 · 25	1 · 30
<del>2 · 12.5</del>	2 · 15
<del>3 · 8.33</del>	3 · 10
<del>4 · 6.25</del>	<del>4 · 7.5</del>
<del>5 · 5</del>	5 · 6

5 → GCF

②  $14 \div 21$

1 · 14	1 · 21
<del>2 · 7</del>	2 · 10.5
<del>3 · 4.66</del>	3 · 7
<del>4 · 3.5</del>	<del>4 · 5.25</del>
<del>5 · 2.8</del>	<del>5 · 4.2</del>
<del>6 · 2.33</del>	<del>6 · 3.5</del>
<del>7 · 2</del>	<del>7 · 3</del>

7 → GCF

③  $24 \div 36$

1 · 24	1 · 36
2 · <span style="border: 1px solid blue; border-radius: 50%; padding: 2px 5px;">12</span>	2 · 18
3 · 8	3 · <span style="border: 1px solid blue; border-radius: 50%; padding: 2px 5px;">12</span>
4 · 6	4 · 9
<del>5 · 4.8</del>	<del>5 · 7.2</del>
<del>6 · 4</del>	6 · 6

GCF

④ Multiply

$$-6x^2(-3x^3 + 10x)$$

$-6x^2 \cdot -3x^3$        $-6x^2 \cdot 10x^1$

$18x^5 - 60x^3$

## 9.4 Factoring out Stuff

$$3x(4x-5y) = 12x^2 - 15xy$$

$$\begin{aligned}
 (2x-4)(3x+4) &= 6x^2 + 8x - 12x - 16 \\
 &= 6x^2 - 4x - 16
 \end{aligned}$$

↑  
Factors

↑  
Polynomials

\* The reverse of distributing is (taking away) factoring.

Factors - are this or variable in a monomial  
| term

# Factors of:

$$\frac{12}{1 \cdot 12}$$

$$2 \cdot 6$$

$$3 \cdot 4$$

$$\swarrow$$

$$\frac{3xy}{1 \cdot 3 \cdot x \cdot y}$$

$$\frac{6^3 x^3 y z^2}{1 \cdot 6 \cdot x \cdot x \cdot x \quad y \quad z \cdot z}$$

$$2 \cdot 3$$

$3 \cdot x \cdot y = \text{GCF}$  Greatest Common Factor

What do they share?

## Homework. Find the GCF. Factor it out.

①  $12x + 6$

$$1 \cdot 12 \quad 1 \cdot 6$$

$$2 \cdot 6 \quad 2 \cdot 3$$

$$3 \cdot 4 \quad 3 \cdot 2$$

$$\swarrow \quad \text{GCF: } 6$$

$$6(2x + 1)$$

②  $9x^2 - 12x$

$$\text{GCF: } 3x$$

$$3x(3x - 4)$$

③  $16a^4 b^2 c - 12a^2 b^4$

$$\text{GCF: } 4a^2 b^2$$

④  $7w^5 - 35w^2$

$$\text{GCF: } 7w^2$$

$$7w^2(w^3 - 5)$$