

Name:

Period:

### Notes 3-4

## Greatest Common Factor (GCF) & Introduction To Factoring

Int 1

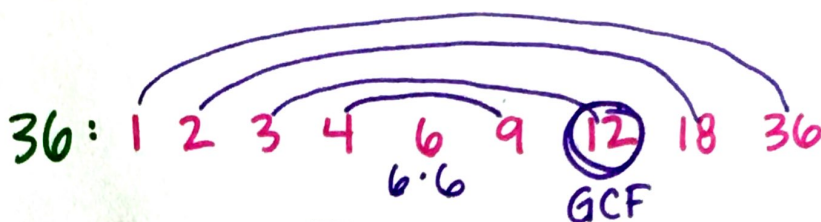
Unit 1

What is a factor?

All #'s that can be multiplied together to get the original #.

24

- 1. 24
- 2. 12 GCF
- 3. 8
- 4. 6



GCF of 24 & 36 is 12.

How do you find the Greatest Common Factor (GCF)?

Step 1: Find all factors of the #'s you're given.

Step 2: What is the GREATEST # they have in common?

Find the greatest common factor (GCF).

- A. 4, 30
- 1. 4
  - 2. 2
  - 1. 30
  - 2. 15
  - 3. 10
  - 5. 6

GCF = 2

- D. 20, 100, 80
- 1. 20
  - 5. 20
  - 4. 20

GCF = 20

- B. 12, 8
- 1. 12
  - 2. 6
  - 3. 4
  - 1. 8
  - 2. 4

GCF = 4

- E. 6, 14, 22
- 1. 6
  - 2. 3
  - 1. 14
  - 2. 7
  - 1. 22
  - 2. 11

GCF = 2

- C. 11, 23
- 1. 11
  - 1. 23

GCF = 1

- F. 81, 45, 9
- 9. 9
  - 9. 5
  - 1. 9

GCF = 9

PRIME  
#'s

Find the greatest common factors (GCF) with variables AND numbers.

1) 4, 12dw  
1(4) 3(4)

GCF = 4

4) 16r, 8, 24y GCF = 8

1(16) 1(8) 3(8)  
2(8)

2) 8h, 24  
1(8) 3(8)

GCF = 8

5) 9, 3m, 18w GCF = 3

1(9) 1(3) 3(6)  
3(3)

3) 50w, 11g  
1(50) 1(11)  
prime

GCF = 1

6) 17n, 13g, 41n GCF = 1

The GCF will ONLY contain a <sup>variable</sup> letter if ALL terms have that same variable!!

What does it mean TO FACTOR an expression?

TO UN-Distribute

- Find the GCF & Divide it out of each term.

\* You can CHECK every answer by Distributing & getting what you started with!

Factor the expressions completely.

7)  $16hf + 8$

GCF 8

$1 \cdot 16$   
 $2 \cdot 8$   
 $4 \cdot 4$

$1 \cdot 8$   
 $2 \cdot 4$

Factored expression  $8(2hf + 1)$

#'s Show up ↑ CHECK:  $8(2hf + 1)$   
 $16hf + 8$  ✓

8)  $13w - 26y$

GCF 13

$1 \cdot 13$   $2 \cdot 13$

Factored expression  $13(1w - 2y) = 13(w - 2y)$

CHECK:  $13(1w - 2y)$   
 $13w - 26y$  ✓

1 Next to the variable can be invisible

9)  $28 - 4ks$

GCF 4

$4 \cdot 7$   $1 \cdot 4$

Factored expression  $4(7 - ks) = 4(7 - ks)$

CHECK:  $4(7 - ks)$   
 $28 - 4ks$  ✓

10)  $36hw - 24 - 12k$  GCF 12

$3 \cdot 12$   $2 \cdot 12$   $1 \cdot 12$

Factored expression  $12(3hw - 2 - k)$   
 $= 12(3hw - 2 - k)$

11)  $12xy + 16h + 4$  GCF 4

$4 \cdot 3$   $4 \cdot 4$   $4 \cdot 1$

Factored expression  $4(3xy + 4h + 1)$

12)  $9h - 36m - 18x$  GCF 9

$1 \cdot 9$   $4 \cdot 9$   $2 \cdot 9$

Factored expression  $9(h - 4m - 2x)$