

Factoring - Day 1

Explore

Name

Key

Date

Period

1. a. List all the factors of 24

1, 2, 3, 4, 6, 8, 12, 24

b. List all the factors of 36

1, 2, 3, 4, 6, 9, 12, 18, 36

2. Circle all the common factors of 24 and 36.

3. The greatest common factor (GCF) of 24 and 36 is 12.4. The prime factorization of 24 is $2 \cdot 2 \cdot 2 \cdot 3$ The prime factorization of 36 is $2 \cdot 2 \cdot 3 \cdot 3$.

Circle the factors they have in common. How do these relate to the GCF found in #3?

When you multiply the factors they equal 125. a. List all the prime factors of x^4 $x \cdot x \cdot x \cdot x$ b. List all the prime factors of x^{10} $x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x$ 6. The greatest common factor (GCF) of x^4 and x^{10} is x^4 .

Find the GCF.

7. $25y, 16y^2$ y 8. $72a^3, 60b^3$ 12 9. $12x^4, 8x^2$ $4x^2$

Write in standard form.

10. $3(4x^2 + 5x + 3)$ $12x^2 + 15x + 9$ 11. $a(6a^2 + 2a + 5)$ $6a^3 + 2a^2 + 5a$ 12. $2a(5a^2 + 3a + 8)$ $10a^3 + 6a^2 + 16a$

Each of these standard form trinomials has a greatest common factor (GCF). Write in factored form.

13. $12x^2 + 15x + 9$ GCF: 314. $6a^3 + 2a^2 + 5a$ GCF: a $3(4x^2 + 5x + 3)$ $a(6a^2 + 2a + 5)$ 15. $10a^3 + 6a^2 + 16a$ GCF: $2a$ $2a(5a^2 + 3a + 8)$

16. How are #10 - 12 related to #13 - 15?

They are the same

Solving Quadratics SQ6

Each of these standard form polynomials has a greatest common factor (GCF). Write in factored form.

17. $24x + 48y$ GCF: 24 18. $9x^2 - 6x$ GCF: 3x
 $24(x + 2y)$ $3x(3x - 2)$

19. $-45x^3 + 15x^2$ GCF: $-15x^2$ 20. $x^3 + 4x^2 + x$ GCF: x
 $-15x^2(3x - 1)$ $x(x^2 + 4x + 1)$

21. $2x^2 + 14x + 26$ GCF: 2 22. $30n^3 + n^2 - 6n$ GCF: n
 $2(x^2 + 7x + 13)$ $n(30n^2 + n - 6)$

23. $-64x^2 - 8x + 16$ GCF: $-\frac{8}{8}$ 24. $4k^4 + 18k^3 - 6k^2$ GCF: $2k^2$
 $-8(8x^2 + x - 2)$ $2k^2(2k^2 + 9k - 3)$
 $8(-8x^2 - x + 2)$

25. When Johnny factored the polynomial $3x^5 + 5x^4 - 6x^2$ he got $x(3x^4 + 5x^3 - 6x)$. Did he factor correctly? Why or why not?

No, there was still a factor of x he needed to factor out. He didn't factor out the correct GCF. of (x^2)

26. The formula $h = 240t - 5t^2$ gives the height, h , in meters of a rocket after t seconds. Factor the expression for height.

GCF: $5t$

$$\boxed{5t(48 - t)}$$

27. The area of a court for the game of squash is $9x^2 + 6x$ square meters. Factor this polynomial to find the dimensions of the squash court.

GCF: $3x$

$$\boxed{3x(3x + 2)}$$