Factor
GCF
DOTS
Trinomials
Can you factor further?

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Algebra 2

Factoring Using GCF, DOTS, Trinomials

Factor each expression

1. $\frac{4x+8}{4}\ \frac{}{4}$

$4(x+2)$

2. $\frac{12x+18}{6}\ \frac{}{6}$

$6(2x+3)$

3. $\frac{x^2-7x}{x}\ \frac{}{x}$

$x(x-7)$

4. $\frac{2x^2-4xy}{2x}\ \frac{}{2x}$

$2x(x-2y)$

5. $\frac{5x^2y-20x}{5x}\ \frac{}{5x}$

$5x(xy-4)$

6. $\frac{ax^2+5ax-a}{a}\ \frac{}{a}\ \frac{}{a}$

$a(x^2+5x-1)$

7. $\sqrt{x^2}-\sqrt{64}$

$(x+8)(x-8)$

8. $\sqrt{y^2}-\sqrt{36}$

$(y+6)(y-6)$

9. $\sqrt{x^2}-\sqrt{25}$

$(x+5)(x-5)$

10. $\sqrt{9}-\sqrt{k^2}$

$(3+k)(3-k)$

11. $\sqrt{4t^2}-\sqrt{25}$

$(2t+5)(2t-5)$

12. $\sqrt{36}-\sqrt{25x^2}$

$(6+5x)(6-5x)$

13. $\sqrt{9x^2} - \sqrt{16y^4}$ DOTS

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

14. $\sqrt{100y^4} - \sqrt{49t^6}$ DOTS

$(10y^2 + 7t^3)(10y^2 - 7t^3)$

15. $x^2 + 4x - 12$ Trinomial

$(x+6)(x-2)$

1,12
2,6
3,4

16. $y^2 + 3y + 2$ Trinomial

$(y+2)(y+1)$

1,2

17. $m^2 - 8m + 15$ Trinomial

$(m-5)(m-3)$

1,15
3,5

18. $x^2 - 8x - 20$ Trinomial

$(x-10)(x+2)$

1,20
2,10
4,5

19. $y^2 + 5y - 14$ Trinomial

$(y+7)(y-2)$

1,14
2,7

20. $x^2 + x - 12$ Trinomial

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

1,12
2,6
3,4

21. $x^2 - 3x - 10$ Trinomial

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

1,10
2,5

22. $x^2 - 7x + 12$ Trinomial

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

1,12
2,6
3,4

23. $x^2 + 2xy + y^2$

$(x+y)(x+y)$

$(x+y)^2$

24. $k^2 - 2kx + x^2$

$(k-x)(k-x)$

$(k-x)^2$

25. $x^4 + 4x^2 - 12$ 1,12 2,6 3,4

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

26. $x^4 - 6x^2 + 9$ 1,9 3,3

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

27. $\frac{2x^2}{2} - \frac{50}{2}$ GCF

$2(x^2-25)$ DOTS

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

28. $\frac{2x^2}{2} - \frac{8x}{2} - \frac{10}{2}$ GCF

$2(x^2-4x-5)$ Trinomial

$2(x-5)(x+1)$

29. $\frac{3x^2}{3} + \frac{9x}{3} - \frac{12}{3}$ GCF

$3(x^2+3x-4)$ Trinomial

$3(x+4)(x-1)$

30. $\frac{6x^2}{6} - \frac{54}{6}$ GCF

$6(x^2-9)$ DOTS

$6(x+3)(x-3)$

31. $\frac{2x^2}{2} + \frac{14x}{2} + \frac{24}{2}$ GCF

$2(x^2+7x+12)$ Trinomial

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

32. $\frac{5x^2}{5} - \frac{500}{5}$ GCF

$5(x^2-100)$ DOTS

$5(x+10)(x-10)$

33. $\frac{ax^2}{a} - \frac{2ax}{a} - \frac{8a}{a}$ GCF

$a(x^2-2x-8)$ Trinomial

$a(x-4)(x+2)$

34. $\frac{yx^2}{y} - \frac{64y}{y}$

$y(x^2-64)$

$y(x+8)(x-8)$

35. $\frac{2x^3}{2x} - \frac{2x^2}{2x} - \frac{12x}{2x}$ GCF

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

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

36. $x^4 + 6x^2 - 7$ Trinomial

$(x^2+7)(x^2-1)$ DOTS

$(x^2+7)(x+1)(x-1)$

37. $\frac{3x^2}{3} - \frac{147}{3}$ GCF

$3(x^2 - 49)$ DOTS

$3(x+7)(x-7)$

38. $\frac{-2x^3}{-2x} + \frac{4x^2}{-2x} + \frac{198x}{-2x}$ GCF

$-2x(x^2 - 2x - 99)$ Trinomial

$-2x(x-11)(x+9)$

39. $\frac{12x^2}{3} - \frac{75}{3}$ GCF

$3(4x^2 - 25)$ DOTS

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

40. $\sqrt{x^4} - \sqrt{81}$ DOTS

DOTS $(x^2-9)(x^2+9)$ → this isn't DOTS because there's a +

$(x+3)(x-3)(x^2+9)$

41. $x^4 - 8x^2 - 9$ Trinomial

DOTS $(x^2-9)(x^2+1)$

$(x+3)(x-3)(x^2+1)$

42. $x^4 + x^2 - 2$ Trinomial

$(x^2+2)(x^2-1)$ DOTS

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