

Pre-Algebra

Factoring Practice

Factor out the GCF.

1. $3x^3 + 12x^2$
 $3x^2(x + 4)$

2. $16b - 12ab$
 $4b(4 - 3a)$

3. $20x^6 + 10x^5 - 15x^3$
 $5x^3(4x^3 + 2x^2 - 3)$

Factor into two binomials.

4. $x^2 + 8x + 15$
 $(x+5)(x+3)$

5. $x^2 + 6x - 7$
 $(x+7)(x-1)$

6. $x^2 + 12x + 27$
 $(x+9)(x+3)$

7. $x^2 + 12x + 35$
 $(x+7)(x+5)$

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

9. $x^2 + x - 12$
 $(x+4)(x-3)$

10. $x^2 - 10x + 21$
 $(x-7)(x-3)$

11. $x^2 + x - 20$
 $(x+5)(x-4)$

12. $x^2 - 9x + 14$
 $(x-7)(x-2)$

13. $x^2 - 49$
 $(x-7)(x+7)$

14. $16x^2 - 25$
 $(4x-5)(4x+5)$

15. $25x^2 - 49$
 $(5x-7)(5x+7)$

16. $81x^2 - 100$
 $(9x-10)(9x+10)$

17. $4x^2 - y^2$
 $(2x-y)(2x+y)$

18. $a^4 - 4$
 $(a^2-2)(a^2+2)$

19. $36x^2 - 25$
 $(6x-5)(6x+5)$

20. $121a^6 - 9b^2$
 $(11a^3-3b)(11a^3+3b)$

21. $x^{10} - 1$
 $(x^5-1)(x^5+1)$

Multiple Choice

22. Which expression is a factor of $x^2 + 5x - 24$? **$(x+8)(x-3)$**
- a. $(x + 4)$ b. $(x - 4)$
c. $(x + 3)$ d. **$(x - 3)$**
23. Expressed in factored form, the binomial $4a^2 - 9b^2$ is equivalent to which product?
- a. $(2a - 3b)(2a - 3b)$
b. $(2a + 3b)(2a - 3b)$
c. $(4a - 3b)(a + 3b)$
d. $(2a - 9b)(2a + b)$
24. What are the factors of $x^2 - 10x - 24$?
- a. $(x - 4)(x + 6)$ b. $(x - 4)(x - 6)$
c. $(x - 12)(x + 2)$ d. $(x + 12)(x - 2)$
25. If $3x$ is one factor of $3x^2 - 9x$, what is the other factor?
- a. $3x$ b. $x^2 - 6x$
c. $x - 3$ d. $x + 3$

FACTORING CHALLENGE

Factor each polynomial into two binomials. Double distribute to check your work.

- a) $225x^{14} - 400y^{12}$ b) $x^2 - 18x - 144$ c) $3x^2 + 10x - 8$
 $(11x^7 - 20y^6)(11x^7 + 20y^6)$ **$(x-24)(x+6)$** **$(3x-2)(x+4)$**