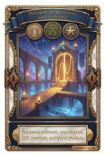
Polynomial Operations and Factoring

Polynomial arithmetic, area structure, GCF, trinomials, and special products.

Name _____ Date _____

32 main · 2-up grid · 2 pages

Completion Reward



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1. Which expression is a trinomial?

A. 4x - 7
B. x^2 + 3x + 1
C. 9
D. x(x + 2)

2. What is the degree of the term 6x^3?

A. 3
B. 6
C. 9
D. 1

3. Which expression is equivalent to (3x^2 + 2x - 1) + (x^2 - 5x + 4)?

A. 4x^4 - 3x + 3
B. 2x^2 - 3x + 5
C. 4x^2 + 7x + 3
D. 4x^2 - 3x + 3

4. Which expression is equivalent to 3x(2x + 5)?

A. 6x + 15x
B. 5x^2 + 6x
C. 6x^2 + 5
D. 6x^2 + 15x

5. Which expression is the factored form of 6x + 18?

A. 3(2x + 18)
B. 6x(1 + 3)
C. 6(x + 3)
D. 2(3x + 18)

6. Which expression is equivalent to 3x^2 - 12?

A. (3x - 2)(x + 2)
B. 3(x - 4)
C. (x - 6)(x + 2)
D. 3(x - 2)(x + 2)

7. Which pair are like terms?

A. 5x^2 and -3x^2
B. 5x and 5x^2
C. 4x and 4y
D. 7 and 7x

8. Which expression is equivalent to 9y + 27?

A. 3(y + 9)
B. 9(y + 27)
C. 9(y + 3)
D. 27(y + 9)

9. A rectangle has side lengths x + 3 and x + 5. Which expression gives its area?

A. x^2 + 8x + 15
B. 2x + 8
C. x^2 + 15
D. x^2 + 2x + 15

10. What is the best first step to factor 3x^2 + 12x?

A. Factor out 3x.
B. Try to make two binomials immediately.
C. Add the exponents to get x^3.
D. Divide every term by x^2.

11. What is the best first step when factoring 3x^2 + 15x?

A. Multiply the terms together.
B. Set the expression equal to 0 immediately.
C. Factor out the greatest common factor 3x.
D. Take the square root of both terms.

12. A student says x(x + 4) = x^2 + 4. What is the mistake?

A. They should have subtracted 4 instead.
B. They did not distribute x to the 4.
C. They should have added exponents on 4.
D. The expression should equal x^2 only.

13. A student says (4x + 3) - (x - 2) = 3x + 1. What is the mistake?

A. They should have added the x terms instead of subtracting them.
B. They should have squared both binomials first.
C. They did not distribute the subtraction to both terms in the second polynomial.
D. They should have factored out x before subtracting.

14. A student says x^2 + 5x + 6 = (x + 6)(x - 1). What is the problem?

A. Binomials can never factor a trinomial.
B. The middle term should always be negative.
C. The constant term 6 should be outside the factors.
D. The factors do not multiply back to x^2 + 5x + 6.

15. Which expression is equivalent to (5x^2 + 3x - 2) - (2x^2 - x + 7)?

A. 3x^2 + 2x + 5
B. 7x^2 + 2x - 9
C. 3x^2 + 4x - 9
D. 3x^2 - 4x - 5

16. Which expression is equivalent to (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

17. Which expression is the factored form of x^2 - 16?

A. (x - 4)(x + 4)
B. (x - 8)(x + 2)
C. (x - 4)^2
D. x(x - 16)

18. Which expression is the factored form of x^2 - x - 12?

A. (x - 6)(x + 2)
B. (x - 3)(x - 4)
C. (x - 4)(x + 3)
D. (x + 4)(x - 3)

19. Simplify (3x^2 + 2x) + (x^2 - 5x). Answer with your final expression.

20. Simplify (5x^2 + 4x - 1) - (2x^2 + x - 3). Answer with your final expression.

21. Expand 2x(x + 7). Answer with an equivalent expression.

22. **Factor 6x + 12. Answer in factored form.**

23. **Factor 4x^2 + 8x. Answer in factored form.**

24. **Factor x^2 + 7x + 12. Answer in factored form.**

25. **Factor x^2 - 25. Answer in factored form.**

26. **Expand (x + 2)(x + 5). Answer with an equivalent expression.**

27. **Factor x^2 + 9x + 20. Answer in factored form.**

28. **Which expression is the factored form of x^2 + 7x + 12?**

A. (x + 3)(x + 4)
B. (x + 6)(x + 2)
C. (x + 12)(x + 1)
D. (x + 4)^2

29. **Expand (x + 1)(x - 6). Answer with an equivalent expression.**

30. **Which is the best first move to factor 2x^2 + 8x?**

A. Use the quadratic formula immediately.
B. Multiply the terms to get 16x^3 first.
C. Rewrite it as 10x^2.
D. Pull out the greatest common factor 2x first.

31. **Which pair of numbers helps factor x^2 + 9x + 20?**

A. 2 and 10
B. 4 and 5
C. 1 and 20
D. -4 and -5

32. **Factor 2x^2 + 10x + 12. Answer in factored form.**