

Quiz for Lessons 8-1 Through 8-4

8-1 Factors and Greatest Common Factors

Write the prime factorization of each number.

1. 54 2. 42 3. 50 4. 120 5. 44 6. 78

Find the GCF of each pair of monomials.

7. $6p^3$ and $2p$ 8. $12x^3$ and $18x^4$
9. -15 and $20s^4$ 10. $3a$ and $4b^2$

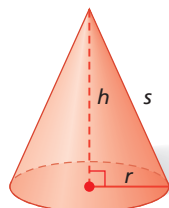
11. Brent is making a wooden display case for his baseball collection. He has 24 balls from American League games and 30 balls from National League games. He wants to display the same number of baseballs in each row and does not want to put American League baseballs in the same row as National League baseballs. How many rows will Brent need in the display case to put the greatest number of baseballs possible in each row?

8-2 Factoring by GCF

Factor each polynomial. Check your answer.

12. $2d^3 + 4d$ 13. $m^2 - 8m^5$
14. $12x^4 - 4x^3 - 8x^2$ 15. $3k^2 + 6k - 3$

16. The surface area of a cone can be found using the expression $s\pi r + \pi r^2$, where s represents the slant height and r represents the radius of the base. Factor this expression.



Factor each polynomial by grouping. Check your answer.

17. $w^3 - 4w^2 + w - 4$ 18. $3x^3 + 6x^2 - 4x - 8$
19. $2p^3 - 6p^2 + 15 - 5p$ 20. $n^3 - 6n^2 + 5n - 30$

8-3 Factoring $x^2 + bx + c$

Factor each trinomial. Check your answer.

21. $n^2 + 9n + 20$ 22. $d^2 - 6d - 7$ 23. $x^2 - 6x + 8$
24. $y^2 + 7y - 30$ 25. $k^2 - 6k + 5$ 26. $c^2 - 10c + 24$

27. Simplify and factor the polynomial $n(n + 3) - 4$. Show that the original polynomial and the factored form describe the same sequence of numbers for $n = 0, 1, 2, 3$, and 4.

8-4 Factoring $ax^2 + bx + c$

Factor each trinomial. Check your answer.

28. $2x^2 + 11x + 5$ 29. $3n^2 + 16n + 21$ 30. $5y^2 - 7y - 6$
31. $4g^2 - 10g + 6$ 32. $6p^2 - 18p - 24$ 33. $12d^2 + 7d - 12$

34. The area of a rectangle is $(8x^2 + 8x + 2)$ cm². The width is $(2x + 1)$ cm. What is the length of the rectangle?