Alternate Test p. T16

Supplementary Materials

Test Masters	23, 24
Resource Book	pp. 26–29

Chapter Test

List all pairs of integral factors of each integer.

1. -87 (1)(−87) (−1)(87) (3)(−29) (−3)(29)
2. 91 (1)(91) (−1)(−91) (7)(13) (−7)(−13)

Give the prime factorization of each number.

3. 420 $2^2 \cdot 3 \cdot 5 \cdot 7$
4. 168 $2^3 \cdot 3 \cdot 7$

Simplify each fraction.

5. $\frac{-70m^5}{-42mn^7}$ $\frac{5m^4}{3n^7}$
6. $\frac{(-3x)^4}{-39x}$ $-\frac{27x^3}{13}$
7. $\frac{49ab^2 - 56ab^8}{7ab^2}$ $7 - 8b^6$
8. $\frac{-65r^6 + 78r^4 - 52r^2}{-13r^2}$ $5r^4 - 6r^2 + 4$

Evaluate by factoring first.

9. $97 \times 16 - 97 \times 6$ 970
10. $82^2 + 82 \cdot 18$ 8200

Write each product as a polynomial.

11. $(5m - 1)(6m - 5)$ $30m^2 - 31m + 5$
12. $(7x - y)(8x + 9y)$ $56x^2 + 55xy - 9y^2$
13. $(7 - 8x)(7 + 8x)$ $49 - 64x^2$
14. $(c^4 + c^2)(c^4 - c^2)$ $c^8 - c^4$
15. $(x - 9)^2$ $x^2 - 18x + 81$
16. $(4m - 6n)^2$ $16m^2 - 48mn + 36n^2$

Decide whether each trinomial is a perfect square. If it is, factor it. If it is not, write *not a perfect square*.

17. $n^2 + 16k - 64$ not a perfect square
18. $16x^2 - 8x + 1$ $(4x - 1)^2$
19. $a^2 - 9ab + 81b^2$ not a perfect square

Factor completely. If the polynomial is not factorable, write *prime*.

20. $b^2 - 3b + 2$ $(b - 2)(b - 1)$
21. $x^2 - 2x + 4$ prime
22. $a^2 - 6ab + 8b^2$
23. $a^2 - 6a - 40$ $(a - 10)(a + 4)$
24. $z^2 + z - 3$ prime
25. $x^2 + 22xy - 48y^2$
26. $4a^2 - a - 5$ $(4a - 5)(a + 1)$
27. $6y^2 + y - 15$ $(3y + 5)(2y - 3)$
28. $7 - 23r + 6r^2$
29. $5(x - y) + z(y - x)$ $(5 - z)(x - y)$
30. $ax + 2x + a + 2$ $(x + 1)(a + 2)$
31. $x^4 - 1$ $(x^2 + 1)(x + 1)(x - 1)$
32. $x^2y - y^3$ $y(x + y)(x - y)$
33. $9m^3 - 63m^2 + 108m$ $9m(m - 4)(m - 3)$
34. $a^2 + a + ab + b$ $(a + b)(a + 1)$

Solve.

22. $(a - 4b)(a - 2b)$ 25. $(x + 24y)(x - 2y)$ 28. $(7 - 2r)(1 -$

35. $3x^2 - 41x = -60$ $\{\frac{5}{3}, 12\}$
36. $5m^2 = 85m$ $\{0, 17\}$
37. $9x^2 = 1$ $\{-\frac{1}{3}, \frac{1}{3}\}$

38. The length of a rectangle is 3 cm more than twice the width. The area of the rectangle is 90 cm^2. Find the dimensions of the rectangle. 15 cm by 6 cm