NAME _____ DATE _____ PERIOD _____

Chapter 8 Test, Form 3

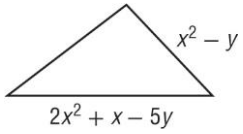
SCORE _____

Find each sum or difference.

1. $(8w^2 + 4w - 2) + (2w^2 - w + 6)$ — **1.** $10w^2 + 3w + 4$

2. $(7u^2x - 3ux + 4ux^2) - (4ux - 3u^2x - 2ux^2)$ — **2.** $10u^2x - 7ux + 6ux^2$

3. GEOMETRY The measures of two sides of a triangle are given on the triangle at the right. If the perimeter of the triangle is $6x^2 + 8y$, find the measure of the third side.



3. $3x^2 - x + 14y$

4. Simplify $5n^2(n - 6) - 2n(3n^2 + n - 6) + 7(n^2 - 3)$. — **4.** $-n^3 - 25n^2 + 12n - 21$

Factor each polynomial.

5. $12x^3y^2z - 24x^2y^3z + 16x^2y^3z^3$ — **5.** $4x^2y^2z(3x - 6y + 4yz^2)$

6. $4x^2y^2 - 9y^2 - 45 + 20x^2$ — **6.** $(2x + 3)(2x - 3) \cdot (y^2 + 5)$

7. $-x^2 + 5x + 24$ — **7.** $-1(x - 8)(x + 3)$

Factor each polynomial, if possible. If the polynomial cannot be factored, write *prime*.

8. $10x^2 + 29x - 21$ — **8.** $(5x - 3)(2x + 7)$

9. $3p^2 - 14p + 12$ — **9.** prime

10. $3x^3 - 24x^2y + 48xy^2$ — **10.** $3x(x - 4y)^2$

11. $3x^4 - 73x^2 - 50$ — **11.** $(x + 5)(x - 5) \cdot (3x^2 + 2)$

12. If $a^2 + b^2 = 11$ and $ab = 3$, find the value of $(a - b)^2$. — **12.** 5

13. Find all values of k so that $t^2 + kt - 8$ can be factored using integers. — **13.** $-7, -2, 2, 7$

14. Find an expression for c that will make $9x^2 + 12xy + c$ a perfect square trinomial. — **14.** $4y^2$

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Chapter 8 Test, Form 3 *(continued)*

Find each product.

15. $(2y - 7)(4y + 4)$

15. $8y^2 - 20y - 28$

16. $\left(\frac{2}{3}m - 1\right)\left(\frac{1}{2}m - 2\right)$

16. $\frac{1}{3}m^2 - \frac{11}{6}m + 2$

Solve each equation.

17. $6x^2 = 22x$

17. $\left\{0, \frac{11}{3}\right\}$

18. $x^2 + \frac{8}{3}x = -\frac{7}{9}$

18. $\left\{-\frac{7}{3}, -\frac{1}{3}\right\}$

19. $a^2 - \frac{11}{2}a + \frac{121}{16} = 0$

19. $\left\{\frac{11}{4}\right\}$

20. Solve $(2x - 3)^2 - 25 = 0$ by factoring. Check your solution.

20. {–1, 4}

21. The volume of a box is 96 cubic inches. The length is 8 inches more than the height. The width is 2 inches less than the height. Find the dimensions of the box.

21. 12 in. × 2 in. × 4 in.

22. A rectangular rug 9 feet by 12 feet is placed in the center of a rectangular room covering three fifths of the floor. The rug leaves the same width of floor uncovered on each side. Find the dimensions of the room.

22. length is 15 ft; width is 12 ft

23. One integer is 3 more than another integer. The difference in their squares is 6 more than 5 times the greater integer. Find the integers.

23. 12 and 15

24. TENNIS Josefina hit a tennis ball into the air with an initial upward velocity of 16 feet per second. The height h in feet of the ball above the ground can be modeled by $h = -16t^2 + 16t + 3$, where t is the time in seconds after Josefina hit the tennis ball. Find the time it takes the ball to reach 7 feet above the ground.

24. $\frac{1}{2}$ s

25. FIBERS The basic breaking strength b in pounds for a natural fiber line is determined by the formula $900c^2 = b$, where c is the circumference of the line in inches. What circumference of natural line would have 100 pounds of breaking strength?

25. $\frac{1}{3}$ in.

Bonus Solve the equation, and check your solutions.
$9t^3 + 15t^2 + t - 6 = (t + 3)(t - 2) - 3t^3$

B. $\left\{-\frac{7}{6}, 0\right\}$