Name _____ **Date** _____ **Period** _____

Review Factoring and Quadratics

Multiply.

1. $(7x + 2)(x + 1)$

2. $(x – 4)(x^2 – 4x – 3)$

3. $(x – 9)(x – 3)$

4. $(x – 9)^2$

5. $(x + 2)(x – 2)$

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

Factor the following polynomials.

7. $x^2 – 2x – 15$

8. $12x^2 – 26x – 10$

9. $2x^2 + x – 3$

10. $9x^2 – 6x – 15$

11. $x^2 – 6x + 9$

12. $7x^2 – 22x + 3$

13. $12x^2 – 3x$

14. $3x^2 – 48$

15. $15x^2 – 17x + 2$

16. $144x^2 – 81$

17. $2x^2 + 5x + 3$

18. $20x^2 – 8x – 28$

19. $4b^3 – 6b^2 + 10b – 15$

20. $2m^3 + 4m^2 + 6m + 12$

21. $2x^3 + x^2 + 8x + 4$

22. $x^3 – 64x$

Solve the following quadratic equations by FACTORING.

23. $6x = -x^2 – 8$

24. $3x^2 = 16x + 12$

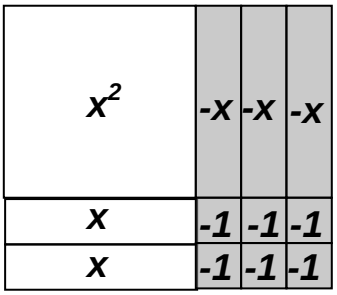
25. $2x^2 = 6x$

26. $4x^2 + x = 9 + x$

27. $(2x-4)(3x+6)= 0$

28. $r^2 + 9 = 10r$

29. Joey used algebra tiles to model the trinomial $x^2 - x - 6$ as shown below.



What are the factors of this trinomial?

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

30. The area of a triangle is given by the equation $h^2 + 4h = 192$ where ***h*** is the height of the triangle. What is the height of the triangle?

A. 8
B. 12
C. 16
D. 24
E. 48

31. The area of a rectangle is represented by the equation $w^2 + 4w = 60$, where ***w*** is the width of the rectangle. Find the width.

32. Determine the area of a rectangle whose dimensions are (3x + 2) and (2x + 1).

33. The area of a rectangle is represented by the polynomial $x^2 + 3x – 6x – 18$. Which of the following could represent the length and width of the rectangle?

A. Length: x + 3 Width: x + 6
B. Length: x – 3 Width: x – 6
C. Length: x + 3 Width: x – 6
D. Length: x – 3 Width: x + 6

Review

34. Solve $|3x + 4| = 13$

35. The owner of a bookstore recorded the following information from last week.

Number of Customers, ***c***	12	18	24	30	36	42
Amount of Sales, ***s*** (in dollars)	80	110	140	170	200	230

According to information in the table, which equation describes the relationship between the number of customers and the amount of sales?

A. s = 6c + 30

B. s = c + 30

C. s = 5c + 20

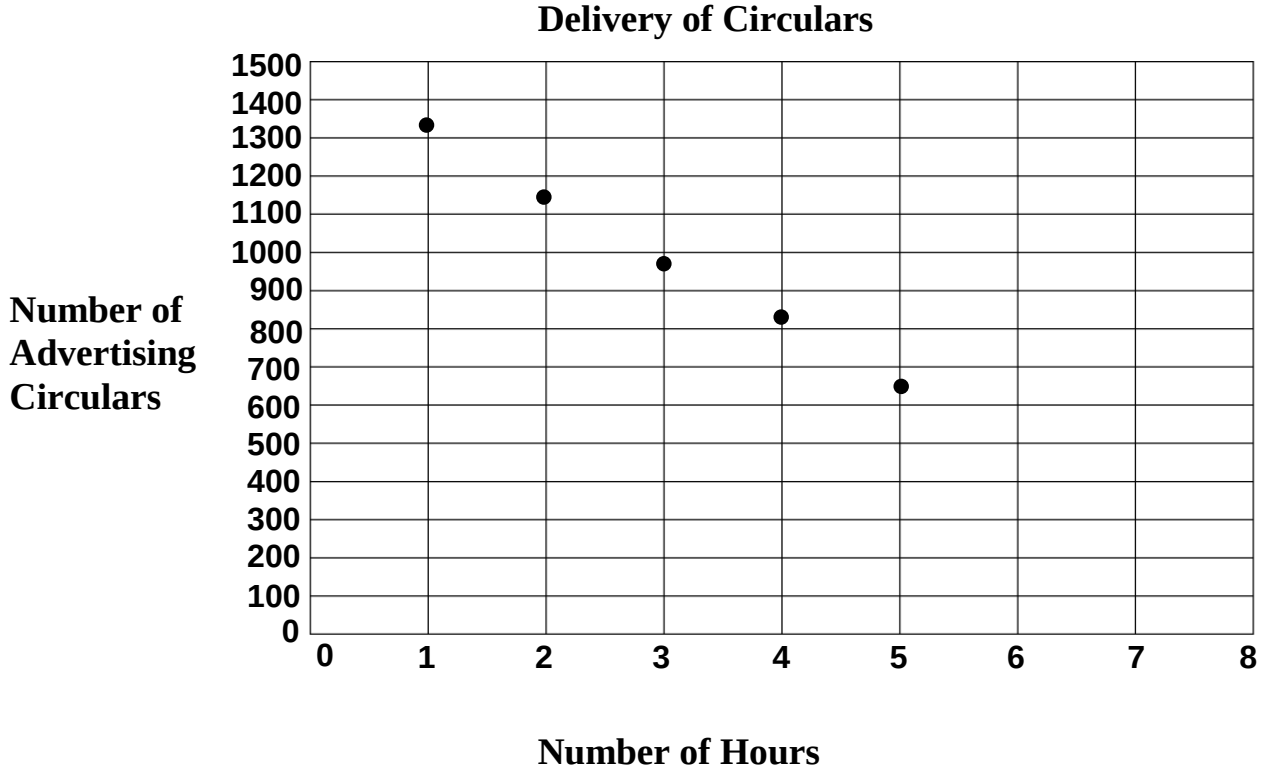
D. $s = \frac{c + 30}{6}$

E. s = 6c + 8

36. A rectangle's length, **l,** is 3 times the width, **w**. If the perimeter of the rectangle is 96 units, what are the rectangle's dimensions?

A. 12 units and 32 units
B. 4 units and 12 units
C. 8 units and 24 units
D. 36 units and 12 units

37. Haley had a job delivering advertising circulars house to house. She started with 1500 circulars. At the end of 1 hour, she had delivered 185. She plotted her progress each hour showing the number of circulars she had left. After 5 hours her graph looked like this.



Based on this information, which is the best prediction of the number of circulars Haley will have left after 8 hours?

A. 485

B. 395

C. 310

D. 275

E. 150

Answers in random order:
$2(2x – 5)(3x + 1)$; -4, -2; $25x^2 + 10x + 1$; $x^3 – 8x^2 + 13x + 12$; $3(x – 4)(x + 4)$; 0, 3; D; $x^2 – 12x + 27$; $(7x – 1)(x – 3)$; $3(3x – 5)(x + 1)$; E; $3x(4x – 1)$; $x^2 – 4$; D; $(2x+3)(x+1)$; 9,1; $(15x – 2)(x – 1)$; $x^2 – 18x + 81$; $(x – 3)(x – 3)$; $7x^2 + 9x + 2$; $\frac{3}{2}, \frac{-3}{2}$; $(x – 5)(x + 3)$; $\frac{-2}{3}$, 6; $9(4x – 3)(4x + 3)$; 3, $\frac{-17}{3}$; $(2x + 3)(x – 1)$; C; B; 2, -2; $x(x+8)(x-8)$; $4(5x-7)(x+1)$; 6; C; $(x^2 +4)(2x+1)$; $(2b^2+5)(2b-3)$; $2(m^2+3)(m+2)$; $6x^2+7x+2$