Name: _____ Date: _____

Chapter 5 Practice Test

For questions 1 to 7, choose the best answer.

1. Which expression is equivalent to $(x – 3)(x + 3)$?
A $x^2 – 6x + 9$ **B** $x^2 + 6x + 9$
C $x^2 – 9$ **D** $x^2 + 9$

2. Which expression is the result of expanding and simplifying $(3x + 1)(4x – 3)$?
A $12x^2 – 12$ **B** $12x^2 – 5x – 3$
C $12x^2 + 5x – 3$ **D** $12x^2 – 5x + 3$

3. Which expression is the factored form of $x^2 + x – 30$?
A $(x + 5)(x – 6)$
B $(x + 6)(x – 5)$
C $(x + 15)(x – 2)$
D $(x – 15)(x + 2)$

4. Which is the y-intercept of the relation $y = 2x^2 + 6x + 7$?
A 2 **B** 3.5
C 6 **D** 7

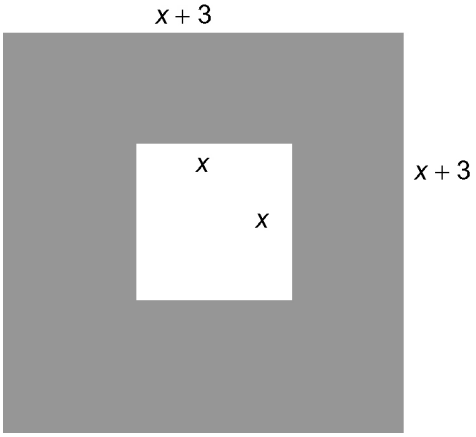
5. Which expression is the factored form of $–3x^2 – 3x + 6$?
A $–3(x + 2)(x – 1)$
B $–3(x – 2)(x + 1)$
C $3(x + 2)(x – 1)$
D $3(x – 2)(x + 1)$

6. Which expression is equivalent to $0.5x^2 – 24.5$?
A $(0.5x + 7)(0.5x – 7)$
B $0.5(x – 7)(x + 7)$
C $0.5(x – 7)(x – 7)$
D $0.5(x + 7)(x + 7)$

7. Which relation is the same as $y = –3(x + 4)^2 + 5$?
A $y = 3x^2 + 8x + 21$
B $y = –3x^2 – 24x + 5$
C $y = –3x^2 + 8x – 43$
D $y = –3x^2 – 24x – 43$

8. Write each relation in standard form.
a) $y = –3(x + 3)^2 – 15$
b) $y = 0.5(x – 2)^2 + 1$
c) $y = 2(x – 4)^2 + 4$

9. a) Write an expression, in simplified form, for the shaded region of the figure.



b) Find the area of the shaded region if $x = 6$ mm.

10. Factor fully.
a) $2x^2 – 2x – 24$
b) $–3x^2 + 3$
c) $0.5x^2 + 1.5 – 14$
d) $–2.5x^2 + 5x + 37.5$
e) $–x^2 + 8x – 7$
f) $–2x^2 + 72$

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11. A baseball was thrown. Its path can be modelled by the relation $y = -5(t - 1)^2 + 6$, where y is the height of the ball in metres and t is the time in seconds.

a) What is the vertex of the relation?

b) What was the maximum height of the ball?

c) How long did it take the ball to reach its maximum height?

d) Write the relation in standard form.

e) What is the y-intercept? What is the meaning of the y-intercept?

12. A garden is surrounded by a brick pathway. The dimensions of the garden are 12 m by 15 m. The pathway has a uniform width of x metres.

a) Write a simplified expression for the area of the garden and pathway together.

b) If the total area of the garden and pathway is 550 m^2, what is the width of the pathway?