

Spiral Review Math III

1. Simplify:  $(14 - 9i) - 2(7 + i)^2$

2. What are the values of  $x$  and  $y$  when  $(5 + 4i) - (x + yi) = (-1 - 3i)$ ?
- A.  $x = 6, y = 7$       C.  $x = 6, y = i$   
 B.  $x = 4, y = i$       D.  $x = 4, y = 7$

3. Which is equivalent to  $(4 - 3i)^2 + (6 + i)^2$ ?
- A. 30      B. 50      C.  $42 - 12i$       D.  $62 - 12i$

4. For which equation is the  $x$ -coordinate of the vertex at 4?
- A.  $f(x) = x^2 - 8x + 15$       C.  $f(x) = x^2 + 6x + 8$   
 B.  $f(x) = -x^2 - 4x + 12$       D.  $f(x) = -x^2 - 2x + 2$

5. Adrian is using 120 feet of fencing to enclose a rectangular area for her puppy. One side of the enclosure will be her house. The function  $f(x) = x(120 - 2x)$  represents the area of the enclosure. What is the greatest area that Adrian can enclose for fencing?
- A. 1650 ft      B. 1800 ft      C. 1980 ft      D. 2140 ft

6. The graph of the function  $x^3$  will be shifted down 2 units and to the right 3 units. Which is the function that corresponds to the resulting graph?
- A.  $g(x) = (x + 3)^2 + 2$       C.  $g(x) = (x + 3)^2 - 2$   
 B.  $g(x) = (x - 3)^2 + 2$       D.  $g(x) = (x - 3)^2 - 2$

7. Which choice shows the solutions to the function  $8x^2 + 3x = -7$ ?
- A.  $\frac{-3 \pm i\sqrt{215}}{16}$       B.  $\frac{3 \pm i\sqrt{215}}{16}$       C.  $\frac{-3 \pm \sqrt{233}}{16}$       D.  $\frac{3 \pm \sqrt{233}}{16}$

8. What value of  $h$  is needed to complete the square for the equation

$$x^2 + 10x - 8 = (x - h)^2 - 33$$

- A. -25      B. -5      C. 5      D. 25

9. The equation  $2x^2 - 5x = -12$  is rewritten in the form of  $2(x - p)^2 + q = 0$ . What is the value of  $q$ ?
- A.  $\frac{167}{16}$       B.  $\frac{71}{8}$       C.  $\frac{25}{8}$       D.  $\frac{25}{16}$

10. Which expression is equivalent to  $(x + 3)^3 - 9x(x + 3)$ ?
- A.  $x^3 + 27$   
 B.  $x^3 - 27$   
 C.  $x^3 - 9x^2 - 27x + 27$   
 D.  $x^3 - 9x^2 + 27x + 27$