Math 0090 Lab Worksheet #12

Objective: Solve problems #1 - #10 involving Quadratic equations. #11 through #15 are review problems.

1. Which of the following expressions should be placed in each set of parentheses below in order to solve the quadratic equation by completing the square method?

   $x^2 + 10x + (?) = -4 + (?)$

   A. $\frac{5}{2}$

   B. 5

   C. 10

   D. 25

2. Which of the following expressions should be placed in each set of parentheses below in order to solve the quadratic equation by completing the square method?

   $x^2 - 2x + (?) = 9 + (?)$

   A. - 4

   B. - 1

   C. 1

   D. 4

3. Which of the following expressions should be placed in each set of parentheses below in order to solve the quadratic equation by completing the square method?

   $x^2 - 5x + (?) = -3 + (?)$

   A. $\frac{5}{2}$

   B. $\frac{25}{4}$

   C. 10

   D. 25

4. Which of the following expressions should be placed in each set of parentheses below in order to solve the quadratic equation by completing the square method?

$x^2 - 9x + (?) = -3 + (?)$

A. $-\frac{9}{2}$

B. $\frac{9}{2}$

C. $\frac{81}{4}$

D. 81

5. Which of the following expressions appears as a step in solving the quadratic equation $x^2 + 12x + 4 = 0$ by completing the square method?

A. $(x+2)^2 = -12$

B. $(x+2)^2 = -12x$

C. $(x+6)^2 = -40$

D. $(x+6)^2 = 32$

6. Solve: $6x^2 + 4x - 1 = 0$

A. $\frac{-4 \pm \sqrt{40}}{8}$

B. $\frac{-2 \pm \sqrt{10}}{6}$

C. $\frac{-1 \pm \sqrt{10}}{3}$

D. No real solution

7. Solve: $x^2 = 4x - 5$

A. - 1, 5

B. 1, - 5

C. $\frac{4 \pm \sqrt{42}}{2}$

D. No real solution

8. Solve: $2x^2 + 19 = 14x$

A. $\frac{-19 \pm \sqrt{473}}{4}$

B. $\frac{-19 \pm \sqrt{249}}{4}$

C. $\frac{7 \pm \sqrt{44}}{2}$

D. $\frac{7 \pm \sqrt{11}}{2}$

9. Solve: $9x^2 + 6x = 1$

A. $\frac{-3}{8}$

B. $\frac{-1 \pm \sqrt{2}}{3}$

C. $\frac{1 \pm \sqrt{2}}{3}$

D. No real solution

10. Solve: $(x-3)(x+5) = 2$

A. $3, -5$

B. $-1 \pm 3\sqrt{2}$

C. $-1 \pm \sqrt{14}$

D. $1 \pm 3\sqrt{2}$

11. A room is 16 ft long, 14 ft wide, and 8 feet high. How many cubic feet of air does the room contain?

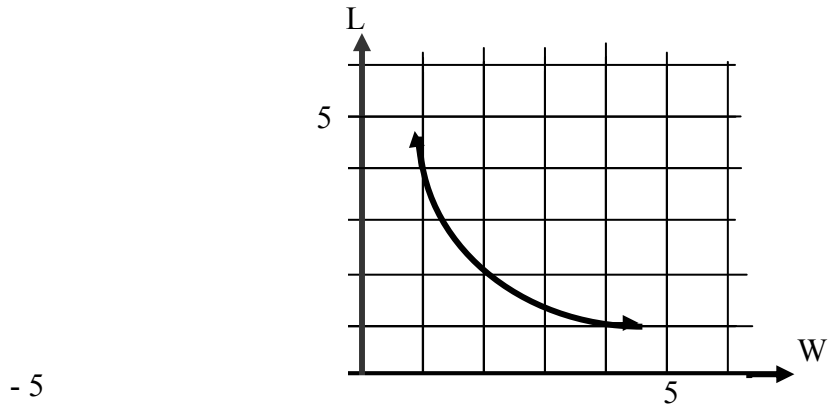
A. $38\ ft^3$

B. $464\ ft^3$

C. $928\ ft^3$

D. $1792\ ft^3$

12. Use the graph below to answer the question that follows.



The graph shows the widths and lengths of rectangles with constant area. Which of the following statement is <u>not</u> valid conclusion in the above graph?

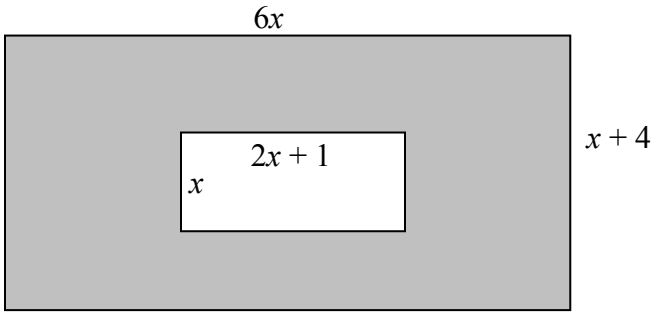
A. Area is always 4.

B. Length varies inversely as width.

C. Length depends on the width.

D. Length and width cannot be equal.

13. What is the area of the shaded part of the following figure?



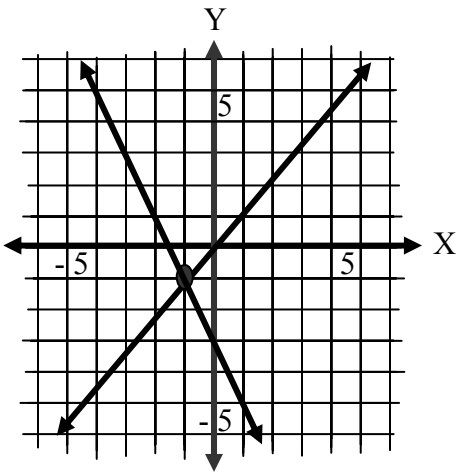
A. $2x^2 + x$

B. $4x^2 + 23x$

C. $6x^2 + 24x$

D. $8x^2 + 25x$

14. Use the diagram below to answer the question that follows.



The graph represents a system of equations. Which pair of equations below identifies these lines?

A. $y = -2x - 3$ and $y = -x$

B. $y = -2x - 3$ and $y = x$

C. $y = 2x - 3$ and $y = -x$

D. $y = 2x - 3$ and $y = x$

15. Add and simplify: $\dfrac{x-12}{x^2+x-6} + \dfrac{x}{x-2}$

A. 2

B. $\dfrac{x+6}{x+3}$

C. $\dfrac{6x}{x^2+x-6}$

D. $x^2 + 4x - 12$