Orientation Exercises 8

1. Which of the following systems of equations does NOT have a solution?

   A. $2x + 4y = 26$, $2x - 4y = 10$
   B. $2x - 4y = 10$, $4x + 2y = 14$
   C. $2x + 4y = 10$, $4x - 2y = 14$
   D. $2x - 4y = 10$, $4x - 8y = 14$
   E. $2x + 4y = 26$, $4x - 2y = 14$

2. Solve the following system: $\frac{1}{x} + \frac{1}{y} = \frac{5}{6}$, $\frac{1}{x} - \frac{1}{y} = \frac{1}{6}$

   A. $x = 3$ and $y = -2$
   B. $x = 2$ and $y = 3$
   C. $x = 3$ and $y = 2$
   D. $x = -2$ and $y = -3$
   E. None of the above

3. For all $x \neq 0$ and $y \neq 0$, $\frac{\left(4x^{-2}y^{3}\right)^{2}}{xy} =$

   A. $\frac{4y^4}{x^2}$
   B. $\frac{9y^4}{x^2}$
   C. $\frac{9y^7}{x^5}$
   D. $9x^3y^8$
   E. $\frac{16y^5}{x^5}$

4. Simplify $\sqrt{32}$.

   A. $2\sqrt{8}$
   B. $2\sqrt{4}$
   C. $4\sqrt{2}$
   D. $3\sqrt{4}$
   E. 6

5. Which of these is an irrational number?

   A. $\sqrt{16}$
   B. $3\sqrt{25}$
   C. $\sqrt{\frac{4}{9}}$
   D. $\sqrt{6}$
   E. $\frac{\sqrt{3}}{\sqrt{27}}$

6. One solution for the equation $3x^2 + 2x - 4 = 0$ is $\frac{-1-\sqrt{13}}{3}$. What is the other solution?

   A. $\frac{-1-\sqrt{13}}{3}$
   B. $\frac{1-\sqrt{13}}{3}$
   C. $-\frac{1}{3} + \sqrt{13}$
   D. $\frac{-1+\sqrt{13}}{3}$
   E. $-1 + \frac{\sqrt{13}}{3}$

7. One solution for the equation $y^2 - 4y + 2 = 0$ is $2 + \sqrt{2}$. What is the other solution?

   A. $-2 - \sqrt{2}$
   B. $2 + 2\sqrt{2}$
   C. $2 - \sqrt{2}$
   D. $2 + \sqrt{2}$
   E. None of the above

8. Find the zeros of the function $f(x) = x^2 - 3x - 10$.

   A. 10, -1
   B. -10, 1
   C. 5, -2
   D. -5, 2
   E. None of the above

9. The expression you would use to solve for x in the quadratic equation $3x^2 + 4x - 6 = 0$ would be

   A. $x = \frac{-(4) \pm \sqrt{(-4)^2 - 4(3)(-6)}}{2(3)}$
   B. $x = \frac{-(-6) \pm \sqrt{(6)^2 - 4(3)(4)}}{2(3)}$
   C. $x = \frac{(3) \pm \sqrt{(3)^2 - 4(3)(-6)}}{2(4)}$
   D. $x = \frac{-(4) \pm \sqrt{(4)^2 - 4(3)(-6)}}{2(3)}$
   E. $x = \frac{-(3) \pm \sqrt{(4)^2 - 4(3)(6)}}{2(4)}$

10. Simplify: $\sqrt{500}$ =

    A. $5\sqrt{10}$
    B. $10\sqrt{2}$
    C. $50\sqrt{10}$
    D. $25\sqrt{5}$
    E. $10\sqrt{5}$