

Practice Exercise 8

1. Solve the following system $\begin{matrix} a+12b=5 \\ +2a-10b=66 \end{matrix}$
- $\begin{matrix} 14b=56 \\ b=4 \\ a-12(4)=5 \\ a-48=5 \\ a=53 \end{matrix}$
- A. $a = -53$ and $b = -4$
 B. $a = 53$ and $b = -4$
 C. $a = -53$ and $b = 4$
 D. $a = 53$ and $b = 4$
 E. None of the above
2. If $3x + 2y = 13$ and $2x + 3y = 12$, find the value of $x - y$.
- $\begin{matrix} 3x+2y=13 \\ -2x-3y=12 \\ \hline x-y=1 \end{matrix}$
- A. 1
 B. 2
 C. 3
 D. 5
 E. 6
3. Simplify $\frac{x+3}{x-2} \cdot \frac{2x-4}{x-2}$.
- $\frac{x+3}{x-2} \cdot \frac{2(x-2)}{x-2} = x+3$
- A. $x - 3$
 B. $x + 3$
 C. $x - 2$
 D. $x + 2$
 E. $\frac{x+3}{x-2}$
4. $\sqrt{48}$ divided by which of the following numbers yields a rational number?
- $\begin{matrix} \sqrt{24} = i\text{rr} \\ \sqrt{4} = i\text{rr} \\ \sqrt{6} = i\text{rr} \\ \sqrt{12} = 2 \\ \sqrt{16} = i\text{rr} \end{matrix}$
- A. $\sqrt{2}$
 B. $\sqrt{4}$
 C. $\sqrt{6}$
 D. $\sqrt{12}$
 E. $\sqrt{16}$
5. $(\sqrt{2} + \sqrt{6})^2 + (\sqrt{3} - \sqrt{4})^2 = ?$
- $\begin{matrix} 2+2\sqrt{12}+6 \\ +3-2\sqrt{12}+4 \\ \hline 5+10 \end{matrix}$
- A. 7
 B. $7 + 8\sqrt{3}$
 C. 13
 D. 15
 E. None of the above
6. The computation for the solution of a quadratic equation is:
- $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{3 \pm \sqrt{(-3)^2 - 4(3)(8)}}{2(3)}$ $b=3$
- The original quadratic equation is:
- A. $5x^2 - 3x - 8 = 0$
 B. $3x^2 + 5x - 8 = 0$
 C. $3x^2 - 3x + 8 = 0$
 D. $x^2 - 5x + 3 = 0$
 E. $-4x^2 + 5x - 3 = 0$
7. Simplify: $\sqrt{80} - \sqrt{45}$
- $\begin{matrix} \sqrt{16 \cdot 5} - \sqrt{9 \cdot 5} \\ = 4\sqrt{5} - 3\sqrt{5} \\ = \sqrt{5} \end{matrix}$
- A. $\sqrt{35}$
 B. $\sqrt{5}$
 C. $5\sqrt{5}$
 D. 5
 E. $3\sqrt{5}$
8. The equation $y^2 + 2y - 2 = 0$ has a root of:
- $\begin{matrix} y = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ y = \frac{-2 \pm \sqrt{4 - 4(1)(-2)}}{2(1)} \\ y = \frac{-2 \pm \sqrt{12}}{2} \\ y = \frac{-2 \pm 2\sqrt{3}}{2} \end{matrix}$
- A. -3
 B. 3
 C. $-1 + \sqrt{3}$
 D. $\sqrt{3} - 1$
 E. $\sqrt{2}$
9. Find the zeros of the function $f(x) = 2x^2 + 3x - 5$.
- Australian method*
 $\begin{matrix} (2x+5)(x-1) \\ \hline 2x^2 + 3x - 5 \end{matrix}$
- A. -5
 B. -5, 1
 C. 5, -1
 D. $-\frac{5}{2}, 1$
 E. $\frac{5}{2}, -1$
10. Solve for the variable: $2x^2 + 3x - 5 = 0$
- $\begin{matrix} (2x+5)(x-1) \\ \hline 2x^2 + 3x - 5 \end{matrix}$
- A. $-1, \frac{5}{2}$
 B. $-1, -\frac{3}{2}$
 C. $1, -\frac{5}{2}$
 D. $1, \frac{1}{2}$
 E. $1, \frac{3}{2}$
- Same question as 10.