

Precalculus
Ch7 Review

Name _____
Period _____

1. Solve the system by substitution

$$\begin{cases} x^2 - y^2 = 9 \\ x - y = 1 \end{cases}$$

2. Solve the system by using elimination:

$$\begin{cases} 3x + 4y = 6 \\ 5x - 7y = 8 \end{cases}$$

3. You set up a business and make an initial investment of \$10,000. The unit cost of the product is \$2.85 and the selling price is \$4.95. How many units must you sell to break even? (Assume all units made are sold).

4. The perimeter of a rectangle is 480 meters and its length is 1.5 times its width. Find the dimensions of the rectangle.

5. Solve the system graphically:

$$\begin{cases} y = 3e^{2(x-1)} \\ y = x^2 + 2 \end{cases}$$

6. Solve the system graphically:

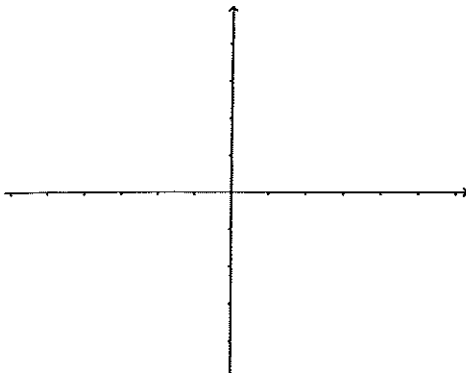
$$\begin{cases} y = \ln(x + 3) \\ y = -(x - 4)^2 + 5 \end{cases}$$

7. A total of \$46,000 is invested in two corporate bonds that pay 6.75% and 7.25% simple interest. The investor wants an annual interest income of \$3,245 from the investments. Write a systems of equations to represent this scenario and use the elimination method to find the amount that should be invested in each bond.

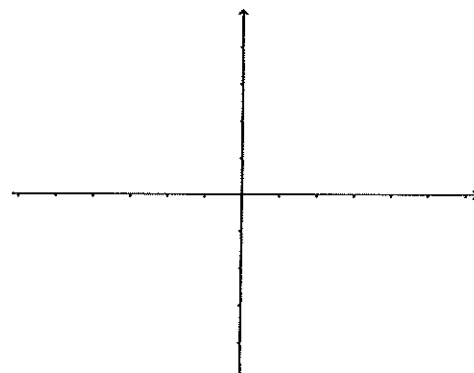
8. How many gallons of a 20% solution of acid must be combined with a 50% solution of acid in order to obtain 300 gallons of a 30% solution of acid?

9. Graph the solution set of the system:

$$\begin{cases} 4x + 3y < 24 \\ 2x - 6y^2 \geq 4 \end{cases}$$



10. Graph the solution set of $x^2 + (y+3)^2 > 36$



11. Solve the system of equations by Gaussian elimination:

$$\begin{cases} x - 2y + 3z = 7 \\ 2x + y + z = 4 \\ -3x + 2y - 2z = -10 \end{cases}$$

12. Solve the system of equations by Gaussian elimination:

$$\begin{cases} x - y - z = 1 \\ -x + 2y - 3z = -4 \\ 3x - 2y - 7z = 0 \end{cases}$$

13. Solve the system of equations by Gaussian elimination:

$$\begin{cases} 2x + 4y - 4z = 2 \\ 2x + 3y + z = 2 \end{cases}$$

14. Solve the system of equations by Gaussian elimination:

$$\begin{cases} 2x - 3y - z = 0 \\ -x + 2y + z = 5 \\ 3x - 4y - z = 1 \end{cases}$$

15. A system of equations has an infinite number of solutions of the general form $(2a+3, a-1, a)$. Write three ordered triples that are solutions of this system.