

Intermediate Algebra, 3/e

Ignacio Bello

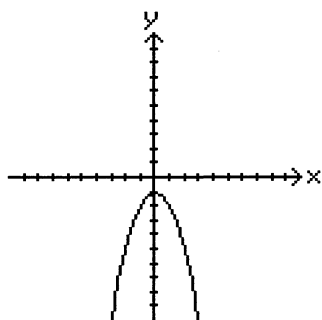
Chapter 9 - Conic Sections and Nonlinear Systems of Equations

Form A-A

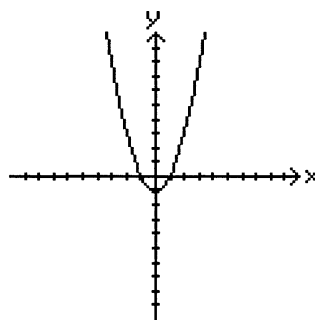
PRACTICE TEST

1. Graph the parabola: $y = -x^2 - 1$

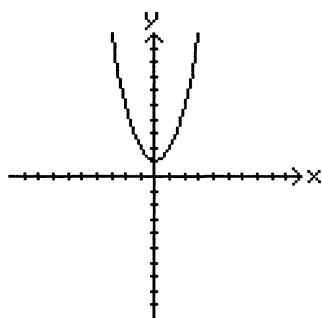
A)



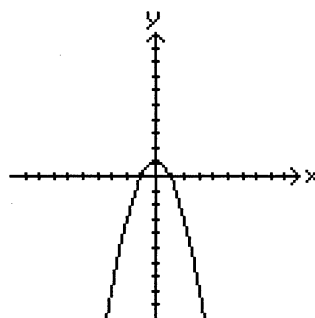
B)



C)



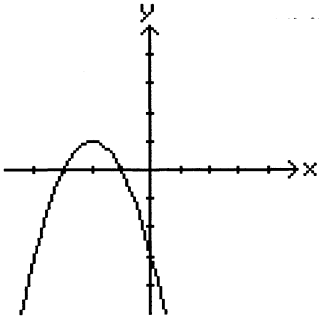
D)



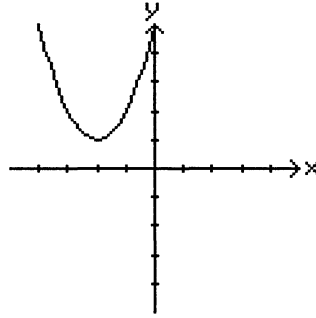
PRACTICE TEST

2. Graph the parabola: $y = (x + 2)^2 + 1$

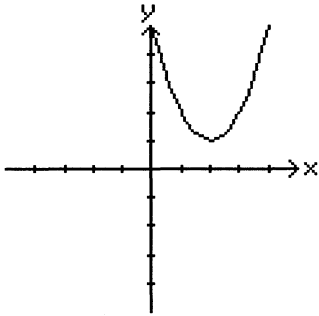
A)



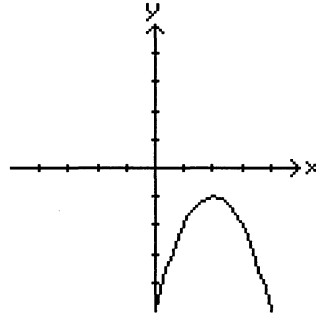
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C)



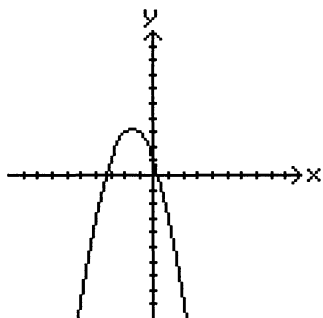
D)



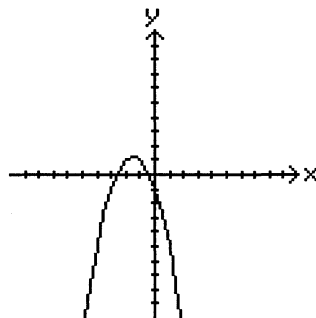
PRACTICE TEST

3. Graph the parabola: $y = -x^2 + 3x + 1$

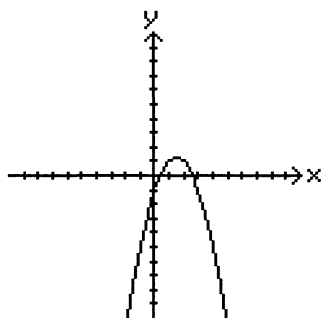
A)



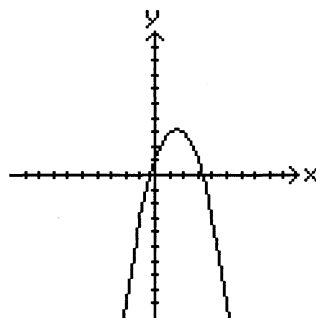
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C)



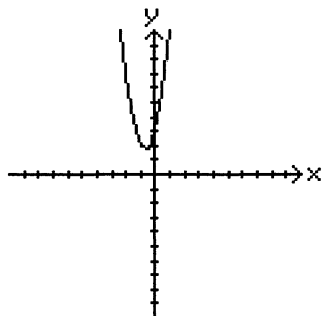
D)



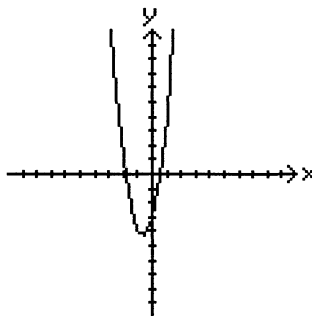
PRACTICE TEST

4. Graph the parabola: $y = 3x^2 - 4x - 3$

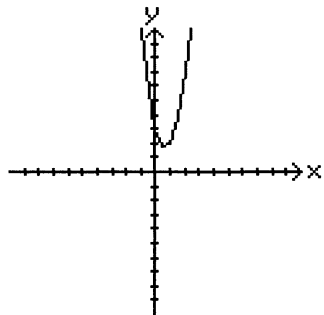
A)



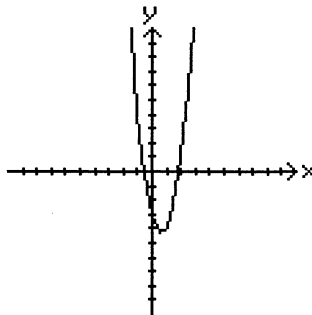
B)



C)



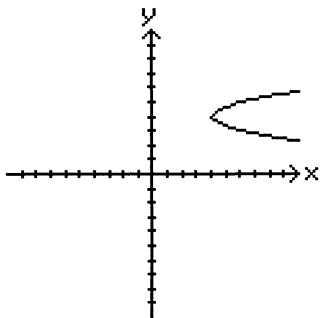
D)



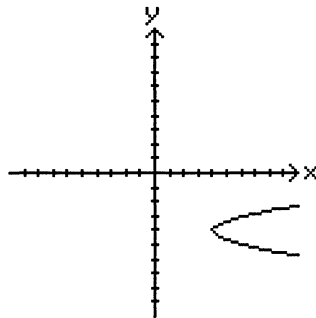
PRACTICE TEST

5. Graph the parabola: $x = 2(y + 4)^2 + 4$

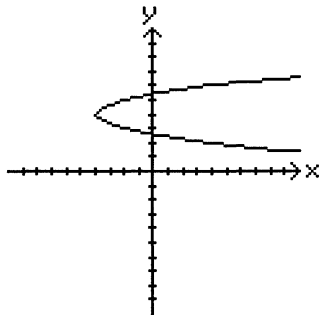
A)



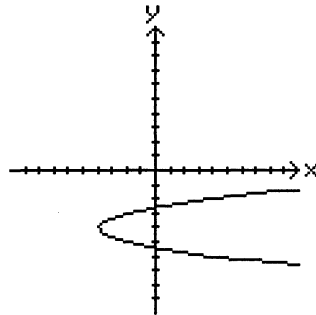
B)



C)



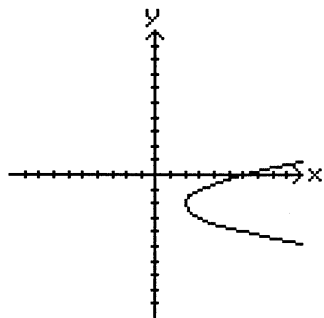
D)



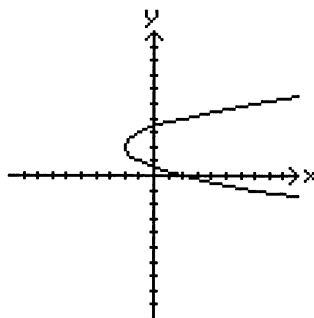
PRACTICE TEST

6. Graph the parabola: $x = y^2 - 4y + 2$

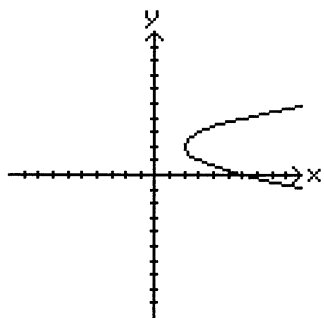
A)



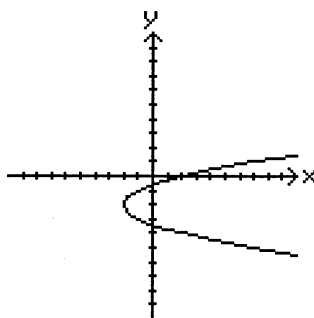
B)



C)



D)



7. If the revenue is given by $R = 240x - 0.06x^2$, find the value of x that yields the maximum revenue.

- A) \$2000 B) \$240,000
C) \$4000 D) \$8000

8. Find the equation of the circle with center at $(1, 1)$ and radius of 3.

- A) $(x - 1)^2 + (y - 1)^2 = 9$ B) $(x - 1)^2 + (y - 1)^2 = 3$
C) $(x + 1)^2 + (y + 1)^2 = 3$ D) $(x + 1)^2 + (y + 1)^2 = 9$

PRACTICE TEST

9. Find an equation of the circle of radius 3 and with its center at the origin.

A) $x^2 + y^2 = 6$

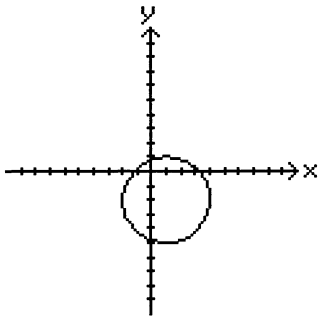
B) $x^2 + y^2 = 9$

C) $x^2 + y^2 = 3$

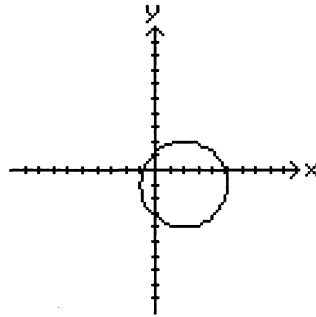
D) $\frac{x^2}{6} + \frac{y^2}{6} = 1$

10. Sketch the graph of $(x + 1)^2 + (y - 2)^2 = 9$.

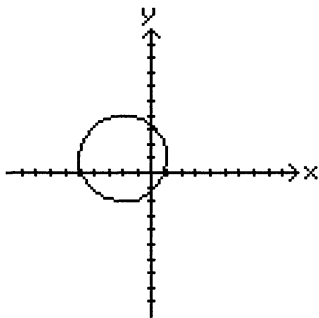
A)



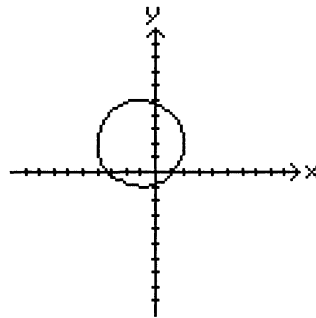
B)



C)



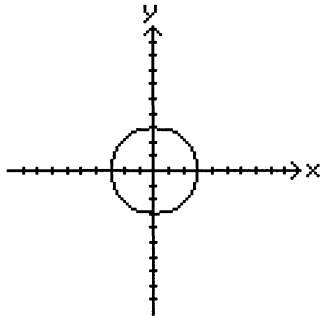
D)



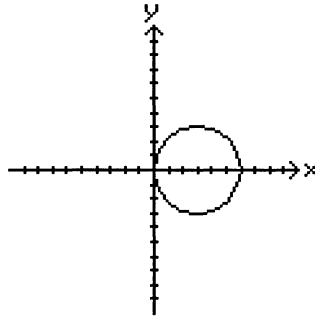
PRACTICE TEST

11. Graph: $2x^2 + 2y^2 = 18$

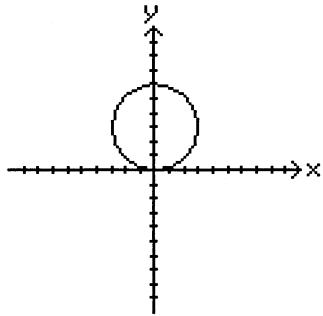
A)



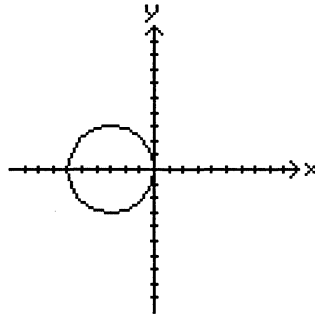
B)



C)



D)



12. Find the center and the radius of $x^2 + y^2 - 10x + 4y + 13 = 0$.

A) center $(5, -2)$; $r = 16$

B) center $(5, -2)$; $r = 4$

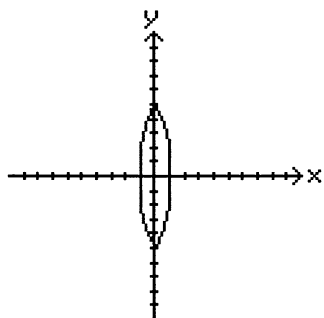
C) center $(-5, 2)$; $r = 4$

D) center $(-5, 2)$; $r = 16$

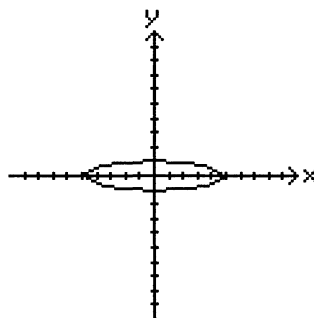
PRACTICE TEST

13. Graph: $x^2 + 25y^2 = 25$

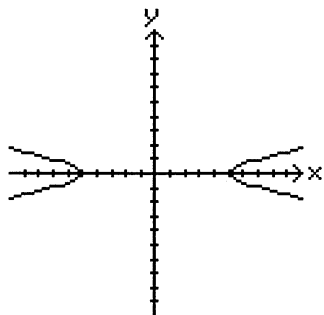
A)



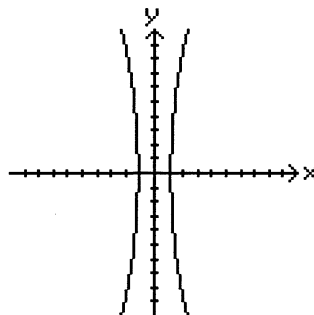
B)



C)



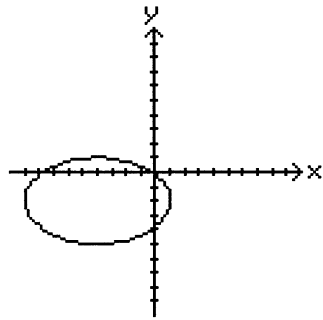
D)



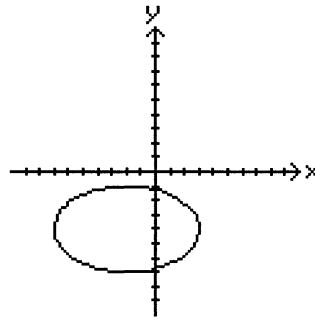
PRACTICE TEST

14. Graph: $\frac{(x + 4)^2}{25} + \frac{(y + 2)^2}{9} = 1$

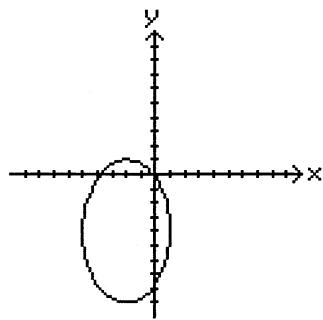
A)



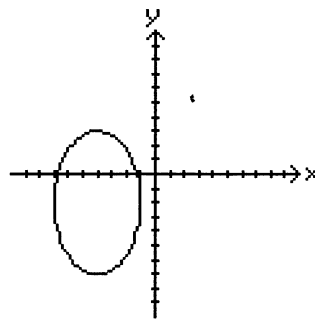
B)



C)



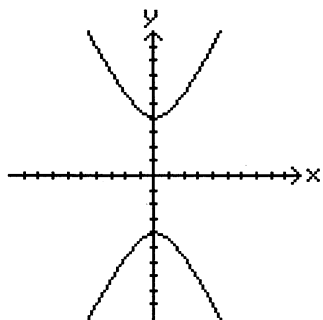
D)



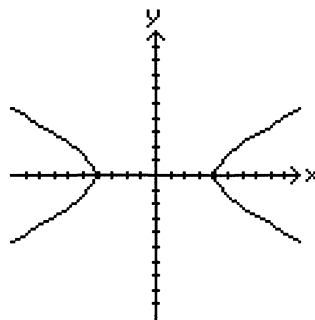
PRACTICE TEST

15. Graph: $\frac{y^2}{4} - \frac{x^2}{16} = 1$

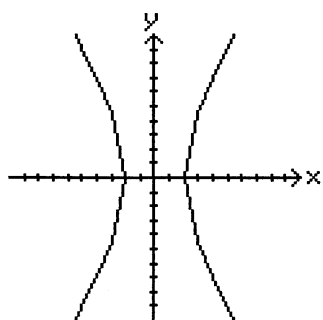
A)



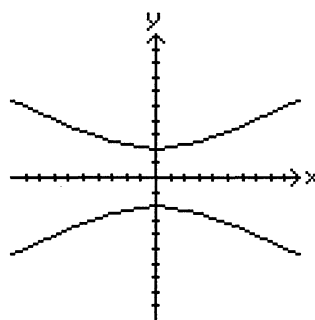
B)



C)



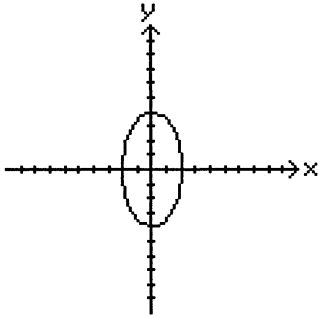
D)



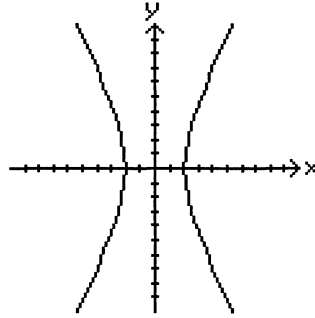
PRACTICE TEST

16. Graph: $\frac{x^2}{16} - \frac{y^2}{4} = 1$

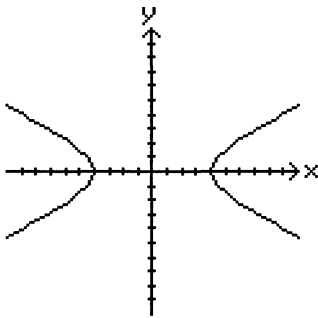
A)



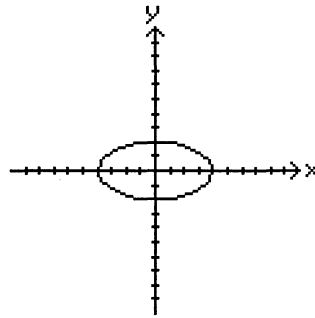
B)



C)



D)



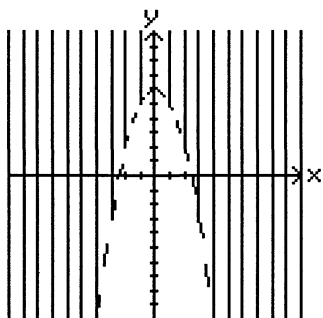
17. Identify the following curve: $49y^2 = 64 - 9y^2$

- A) parabola B) ellipse
C) hyperbola D) circle

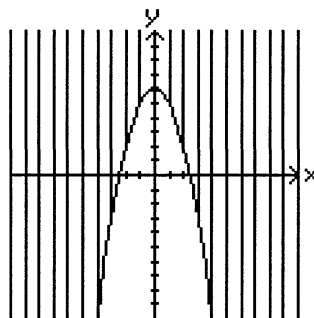
PRACTICE TEST

18. Graph the inequality: $y \leq -x^2 + 6$

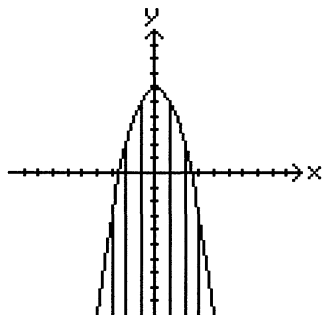
A)



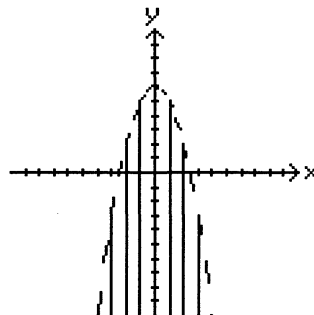
B)



C)



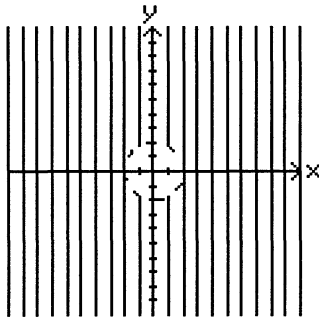
D)



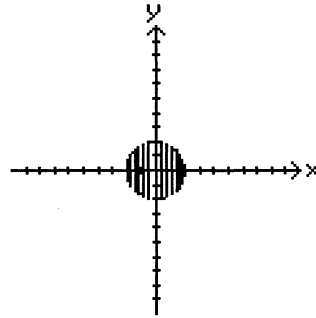
PRACTICE TEST

19. Graph the inequality: $x^2 + y^2 < 4$

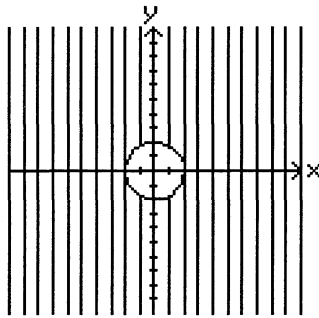
A)



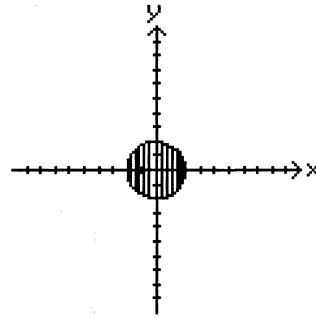
B)



C)



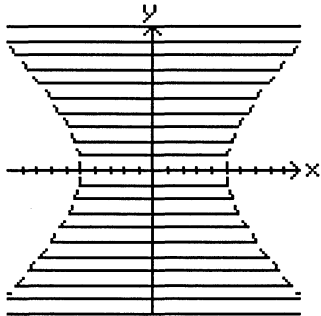
D)



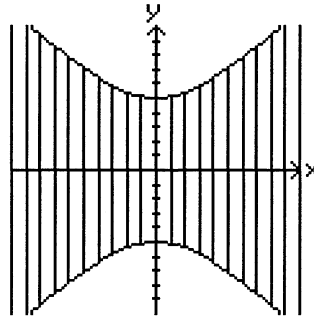
PRACTICE TEST

20. Graph the inequality: $y^2 - x^2 \leq 25$

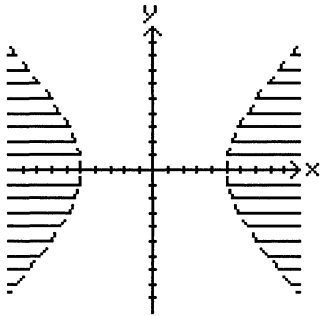
A)



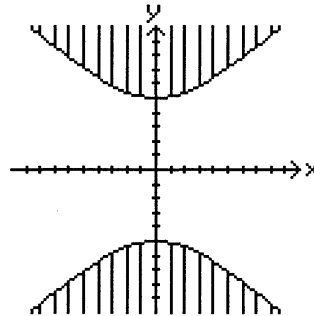
B)



C)



D)

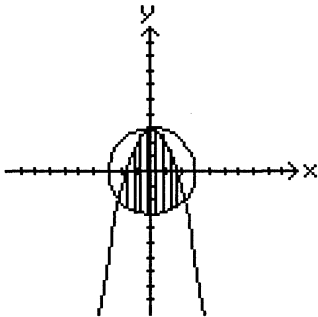


PRACTICE TEST

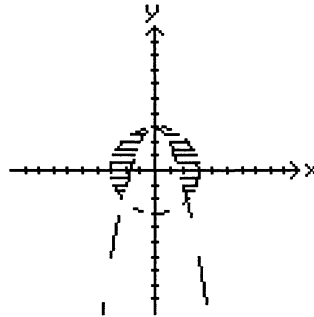
21. Graph the system:

$$\begin{aligned}x^2 + y^2 &\leq 9 \\ y &\leq 3 - x^2\end{aligned}$$

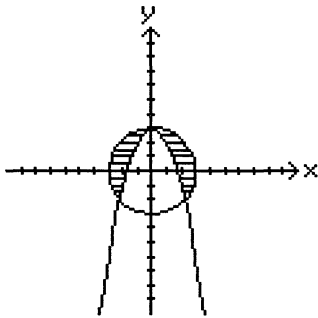
A)



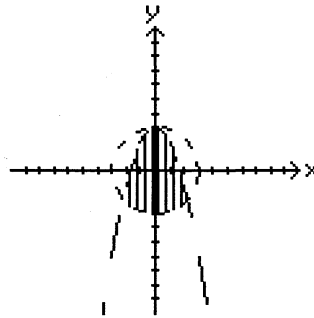
B)



C)



D)



22. Use the substitution method to find the solution set of the system:

$$\begin{aligned}x^2 + y^2 &= 9 \\ x + y &= 3\end{aligned}$$

A) $\{(3, -3), (-3, -3)\}$

B) $\{(0, 3), (3, 0)\}$

C) $\{(0, -3), (-3, 0)\}$

D) $\{(0, 0), (3, -3)\}$

PRACTICE TEST

23. Use the substitution method to solve the system:

$$\begin{aligned}x^2 + y^2 &= 9 \\x + y &= 6\end{aligned}$$

A) $\left(3 - \frac{3\sqrt{2}}{2}i, 3 - \frac{3\sqrt{2}}{2}i\right)$
 $\left(3 + \frac{3\sqrt{2}}{2}i, 3 + \frac{3\sqrt{2}}{2}i\right)$

B) $(1, 2\sqrt{2})$
 $(-1, -2\sqrt{2})$

C) $\left(3 + \frac{3\sqrt{2}}{2}i, 3 - \frac{3\sqrt{2}}{2}i\right)$
 $\left(3 - \frac{3\sqrt{2}}{2}i, 3 + \frac{3\sqrt{2}}{2}i\right)$

D) $(2\sqrt{2}, 1)$
 $(2\sqrt{2}, -1)$

24. Solve the system:

$$\begin{aligned}x^2 + y^2 &= 20 \\x^2 - 2y^2 &= 8\end{aligned}$$

A) $(-4, 2), (-4, -2)$

B) $(4, 2), (4, -2)$
 $(-4, 2), (-4, -2)$

C) $(4, 2), (4, -2)$

D) $(1, \sqrt{19}), (1, -\sqrt{19})$
 $(-1, \sqrt{19}), (-1, -\sqrt{19})$

25. The cost C of manufacturing and selling x units of a product is $C = 19x + 11$, and the corresponding revenue R is $R = x^2 - 55$. Find the break-even value of x .

A) 3

B) 22 or 3

C) 22

D) 25