

## LESSON PRACTICE

# 3A

Graph each hyperbola showing asymptotes if applicable.

1.  $\frac{Y^2}{9} - \frac{X^2}{16} = 1$

2.  $XY = 7$

Solve the following systems of equations. Prove your answer with a graph.

3.  $16X^2 + 25Y^2 = 400$   
 $X^2 + Y^2 = 25$

LESSON PRACTICE 3A

4.  $Y = X^2 - 2X + 2$   
 $Y - 2X = -2$

5.  $Y = X^2 + 1$   
 $Y - X = 1$

6. Graph  $Y < X^2 + 2$

## LESSON PRACTICE

# 3B

Graph each hyperbola showing asymptotes if applicable.

1.  $XY = -2$

2.  $X^2 - Y^2 = 16$

3. Graph  $X^2 + Y^2 \leq 4$

Solve the following system of equations. Prove your answer with a graph.

4.  $4Y = 3X$   
 $X^2 + Y^2 = 25$

5.  $XY = 6$   
 $Y = -X - 5$

6.  $\frac{X^2}{4} - \frac{Y^2}{9} = 1$   
 $X^2 + Y^2 = 4$

## LESSON PRACTICE

# 3C

Graph each hyperbola showing asymptotes if applicable.

1.  $Y = \frac{6}{X}$

2.  $Y^2 - X^2 = 4$

3. Graph  $XY > 1$

Solve the following systems of equations. Prove your answer with a graph.

4.  $X^2 + Y^2 = 4$   
 $Y = X + 1$

5.  $XY = 5$   
 $Y = -X$

6.  $\frac{X^2}{4} - Y^2 = 1$   
 $Y = 1$

## LESSON PRACTICE

# 3D

Graph each hyperbola showing asymptotes if applicable.

1.  $16 + X^2 = 4Y^2$

2.  $\frac{Y^2}{4} - \frac{X^2}{9} = 1$

3. Graph  $X^2 - 2X + Y^2 < 3$

Solve the following system of equations. Prove your answer with a graph.

4.  $Y = X^2 - 2X - 3$   
 $Y = -X^2 + 2X - 5$

5.  $X^2 - Y^2 = 1$   
 $X^2 + Y^2 = 5$

6.  $X^2 + Y^2 = 4$   
 $4X^2 + Y^2 = 4$

Circle your answer.

1. Find the hyperbola(s).

i.  $Y = -\frac{2}{X}$

ii.  $XY = 3$

iii.  $X^2 = Y^2 + 3$

iv.  $Y^2 - X^2 = 7$

- A. ii + iv only
- B. iv only
- C. all of the above
- D. none of the above

2. The intersection of  $Y = \frac{1}{2}X^2 - 2$  and  $Y - X = -2$  is:

- A. (0, 2) and (2, 0)
- B. (0, -2) and (-2, 0)
- C. (2, -2) and (2, 0)
- D. (0, -2) and (2, 0)

3. The intersection of  $X^2 + Y^2 = 4$  and  $Y = X$  is:

- A.  $(\sqrt{2}, \sqrt{2})$  and  $(-\sqrt{2}, -\sqrt{2})$
- B. (2, 2) and  $(-\sqrt{2}, \sqrt{2})$
- C. (-2, -2) and (0, 0)
- D.  $(-\sqrt{2}, \sqrt{2})$  and  $(\sqrt{2}, -\sqrt{2})$

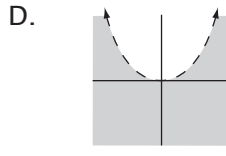
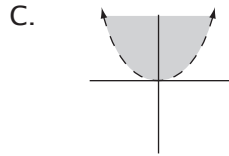
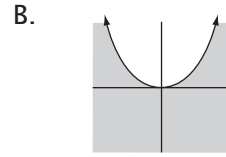
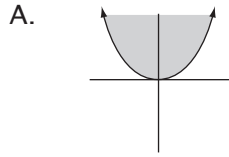
4. To graph  $X^2 + Y^2 \geq 1$ , you must shade

- A. Inside the circle
- B. Outside the circle
- C. Inside the ellipse
- D. Outside the ellipse

5. The graph of  $XY = -1$  is found in quadrants

- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 2 and 4

6. Which drawing depicts the graph of  $Y \leq X^2$  covered by the shaded area?



7. The asymptotes of  $4Y^2 - X^2 = 16$  are

A.  $Y = \pm 2X$

B.  $Y = \pm \frac{1}{4}X$

C.  $Y = \pm 4X$

D.  $Y = \pm \frac{1}{2}X$

8. The hyperbola in problem # 7 is

A. is an up-down hyperbola

B. is a left-right hyperbola

C. is graphed in quadrants 1 & 3 only

D. is graphed in quadrants 2 & 4 only

9. Where do  $XY = 1$  and  $Y = X$  meet?

A.  $(0, 0)$  and  $(1, 1)$

B.  $(1, 0)$  and  $(0, 1)$

C.  $(1, 1)$  and  $(-1, -1)$

D.  $(1, 1)$  and  $(2, 2)$

10. Where do  $XY = -1$  and  $Y = X$  meet?

A.  $(1, 1)$  and  $(-1, -1)$

B.  $(0, 0)$  and  $(1, 1)$

C.  $(1, 1)$  only

D. no solution