# Introduction to Conic Forms – Part II
## Graphing Format for Circles, Ellipses and Hyperbolas

**Part A.** Describe the graph of each of the following equations.

1. $\dfrac{(x-5)^2}{9}+\dfrac{(y+2)^2}{16}=1$

2. $\dfrac{(x+3)^2}{1}-\dfrac{(y+1)^2}{9}=1$

3. $-\dfrac{x^2}{4}+\dfrac{y^2}{9}=1$

4. $\dfrac{(x+4)^2}{16}-\dfrac{(y-3)^2}{25}=1$

5. $(x+3)^2+(y+1)^2=25$

6. $x^2+(y-5)^2=36$

7. $-\dfrac{(x-6)^2}{4}+\dfrac{(y-3)^2}{49}=1$

8. $\dfrac{(x-3)^2}{20}+\dfrac{y^2}{100}=1$

9. $x^2+y^2=150$

10. $\dfrac{(x-1)^2}{64}-\dfrac{(y+7)^2}{12}=1$

11. $-\dfrac{(x+5)^2}{4}+\dfrac{(y+2)^2}{81}=1$

12. $\dfrac{(x-3)^2}{49}+\dfrac{y^2}{9}=1$

13. $-\dfrac{(x-8)^2}{2}+\dfrac{(y+2)^2}{50}=1$

14. $\dfrac{x^2}{144}-\dfrac{(y+5)^2}{25}=1$

15. $(x+6)^2+(y+2.5)^2=4$

16. $\dfrac{(x-4.5)^2}{36}-\dfrac{(y+1)^2}{4}=1$

17. $\dfrac{\left(x-2\frac{1}{2}\right)^2}{\left(\frac{49}{4}\right)}+\dfrac{\left(y+1\frac{1}{2}\right)^2}{\left(\frac{121}{4}\right)}=1$

18. $-\dfrac{(x-1)^2}{169}+\dfrac{(y+6)^2}{30}=1$

**Part B.** Use the above data to graph each problem.

Answers to Part A.

1. Ellipse with center (5,–2)
$r_x = 3$, $r_y = 4$

2. Horizontal hyperbola with center (–3,–1)
$r_x = 1$, $r_y = 3$

3. Vertical hyperbola with center (0,0)
$r_x = 2$, $r_y = 3$

4. Horizontal hyperbola with center (–4,3)
$r_x = 4$, $r_y = 5$

5. Circle with center (–3,–1) and radius = 5

6. Circle with center (0,5) and radius = 6

7. Vertical hyperbola with center (6,3)
$r_x = 2$, $r_y = 7$

8. Ellipse with center (3,0)
$r_x = \sqrt{20}$, $r_y = 10$

9. Circle with center (0,0) and radius = $\sqrt{150}$

10. Horizontal hyperbola with center (1,–7)
$r_x = 8$, $r_y = \sqrt{12}$

11. Vertical hyperbola with center (–5,–2)
$r_x = 2$, $r_y = 9$

12. Ellipse with center (3,0)
$r_x = 7$, $r_y = 3$

13. Vertical hyperbola with center (8,–2)
$r_x = \sqrt{2}$, $r_y = \sqrt{50}$

14. Horizontal hyperbola with center (0,–5)
$r_x = 12$, $r_y = 5$

15. Circle with center (–6,–2.5) and radius = 2

16. Horizontal hyperbola with center (4.5,–1)
$r_x = 6$, $r_y = 2$

17. Ellipse with center (2½, –1½)
$r_x = 3½$, $r_y = 5½$

18. Vertical hyperbola with center (1,–6)
$r_x = 13$, $r_y = \sqrt{30}$