KEY Part 1: Circles

1. $(x-4)^2 + y^2 = 12.25$

2. $(x+2)^2 + (y-3)^2 = \frac{9}{4}$

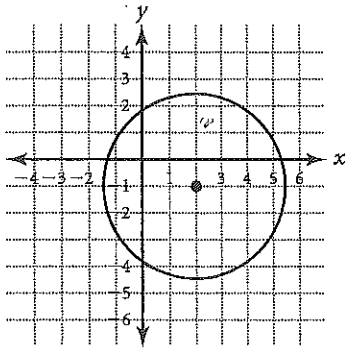
3. $(x-3)^2 + (y-2)^2 = 6\frac{1}{4}$

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

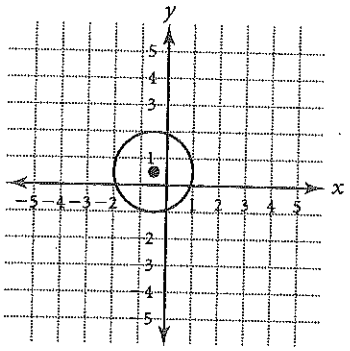
5. $(x+2)^2 + \left(y - \frac{3}{2}\right)^2 = \frac{9}{16}$

6. $(x-0.6)^2 + (y+0.3)^2 = 0.49$

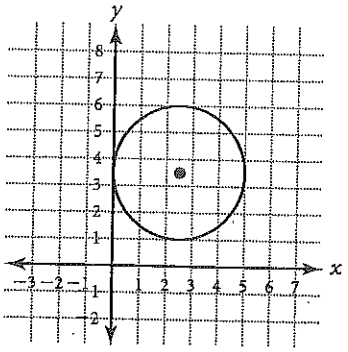
7. $C(2, -1)$



8. $C = \left(\frac{-1}{2}, \frac{1}{2}\right)$



9. $C = \left(2\frac{1}{2}, 3\frac{1}{2}\right)$



10. $(x+2)^2 + (y-4)^2 = 36$;
$C(-2, 4)$; $r = 6$

11. $\left(x - \frac{3}{2}\right)^2 + \left(y - \frac{5}{2}\right)^2 = 9$;

$C\left(\frac{3}{2}, \frac{5}{2}\right)$; $r = 3$

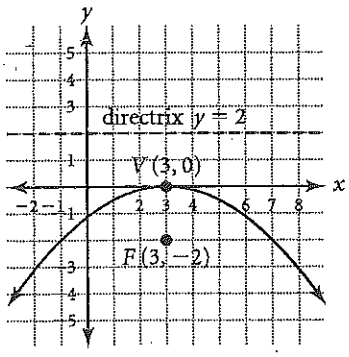
KEY Part 2: Parabolas

1. $y - 4 = \frac{1}{4}(x+2)^2$

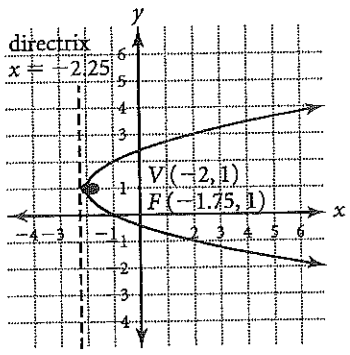
2. $x + 5 = \frac{-1}{8}(y-3)^2$

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

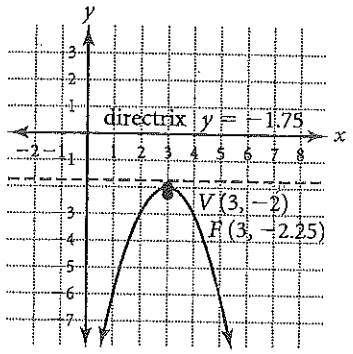
4.



5.



6.



7. $y - 2 = \frac{-1}{20}(x + 3)^2$

8. $x - 5 = \frac{1}{24}(y - 1)^2$

9. $y + 1 = \frac{1}{12}(x - 4)^2$

10. $y + 1 = \frac{1}{8}(x + 5)^2$

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

12. $y + 2 = \frac{1}{32}(x - 1)^2$

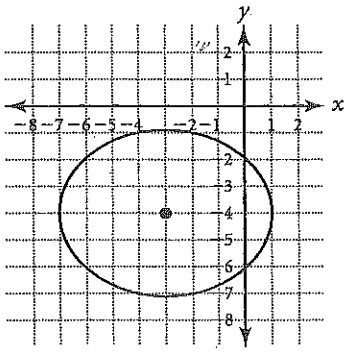
KEY Part 3: Ellipses

1. $\frac{(x-2)^2}{25} + \frac{(y+1)^2}{9} = 1$

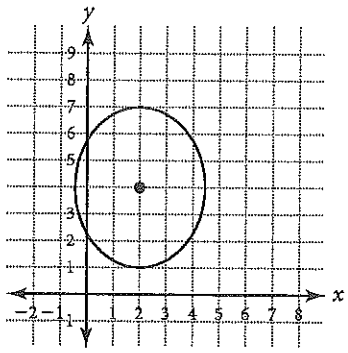
2. $\frac{(x+3)^2}{9} + \frac{(y-2)^2}{16} = 1$

3. $\frac{(x-4)^2}{36} + \frac{(y-2)^2}{4} = 1$

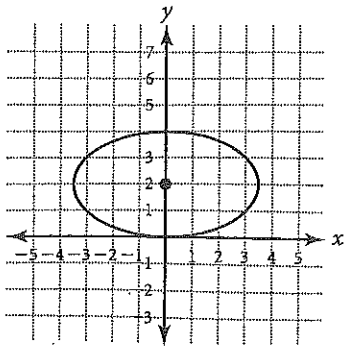
4. Center: $(-3, -4)$; Vertices: $(1, -4)$ and $(-7, -4)$; Co-Vertices: $\left(-3, -4 \pm \sqrt{10}\right)$; Foci: $\left(-3 \pm \sqrt{6}, -4\right)$



5. Center: $(2, 4)$; Vertices: $(2, 7)$ and $(2, 1)$; Co-Vertices: $\left(2 \pm \sqrt{6}, 4\right)$; Foci: $\left(2, 4 \pm \sqrt{3}\right)$



6. Center: $(0, 2)$; Vertices: $\left(\pm 2\sqrt{3}, 2\right)$; Co-Vertices: $(0, 4)$ and $(0, 0)$; Foci: $\left(\pm 2\sqrt{2}, 2\right)$



7. $\frac{(x+2)^2}{12} + \frac{(y-1)^2}{4} = 1$

8. $\frac{(x+2)^2}{100} + \frac{(y-3)^2}{25} = 1$

9. $\frac{(x-1)^2}{4} + \frac{(y+1)^2}{9} = 1$

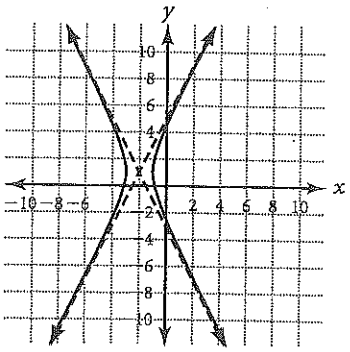
10. $\frac{(x-1)^2}{24} + \frac{(y+2)^2}{6} = 1$

KEY Part 4: Hyperbolas

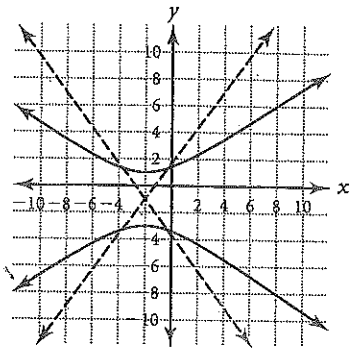
1. $\frac{(x+1)^2}{25} - \frac{(y-2)^2}{16} = 1$

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

3. Center: $(-2, 1)$;
Vertices $(-3, 1), (-1, 1)$;
Co-vertices $(-2, 3), (-2, -1)$;
Foci $\left(-2 \pm \sqrt{5}, 1\right)$



4. Center: $(-2, -1)$;
Vertices $(-2, -5), (-2, 3)$;
Co-vertices $(-5, -1), (1, -1)$;
Foci: $(-2, 4), (-2, -6)$



5. $\frac{(x+3)^2}{4} - (y-2)^2 = 1$

6. $\frac{(x-1)^2}{3} - \frac{(y-5)^2}{12} = 1$

7. $\frac{(y-4)^2}{10} - \frac{(x-3)^2}{5} = 1$

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

KEY Part 5: Classify Conic Sections and Solve Systems of Conic Sections

1. $(3, 4), (-3, 4), (\sqrt{4.75}, -4.5), (-\sqrt{4.75}, -4.5)$
2. $(1, 4), (1, -4)$
3. $(-2, 3), (1.19, 2.42)$
4. $(3, 5), (3, -5), (-3, 5), (-3, -5)$
5. $(1, 5), (1, -5), (-1, 5), (-1, -5)$
6. $(\pm 5, 0)$
7. $(2, 0), (-2, 0)$
8. $(0, 3)$
9. none
10. parabola
11. hyperbola
12. ellipse