SATPREP

Name_____

Assignment: Ellipse

Date_____

Identify the vertices and foci of each.

1) $\frac{x^2}{64} + \frac{y^2}{196} = 1$

2) $\frac{x^2}{49} + \frac{y^2}{25} = 1$

Identify the center, vertices, foci, and eccentricity of each.

3) $\frac{(x+8)^2}{36} + \frac{(y+9)^2}{25} = 1$

4) $\frac{(x+4)^2}{49} + \frac{(y-4)^2}{64} = 1$

5) $\frac{(x+7)^2}{36} + \frac{(y-4)^2}{225} = 1$

6) $\frac{(x-4)^2}{144} + \frac{(y+1)^2}{64} = 1$

7) $x^2 + 25y^2 - 225 = 0$

8) $16x^2 + 25y^2 - 400 = 0$

9) $x^2 + 25y^2 - 25 = 0$

10) $x^2 + 4y^2 - 16 = 0$

11) $11x^2 + 2y^2 - 176x - 28y + 692 = 0$

12) $36x^2 + 49y^2 + 588y = 0$

13) $16x^2 + 36y^2 + 80x - 396y - 107 = 0$

14) $16x^2 + 9y^2 - 224x - 72y + 352 = 0$

Answers to Assignment: Ellipse

1) Vertices: $(0, 14), (0, -14)$
Foci: $(0, 2\sqrt{33}), (0, -2\sqrt{33})$

2) Vertices: $(7, 0), (-7, 0)$
Foci: $(2\sqrt{6}, 0), (-2\sqrt{6}, 0)$

3) Center: $(-8, -9)$
Vertices: $(-2, -9), (-14, -9)$
Foci: $(-8 + \sqrt{11}, -9), (-8 - \sqrt{11}, -9)$
Eccentricity: $\frac{\sqrt{11}}{6} \approx 0.553$

4) Center: $(-4, 4)$
Vertices: $(-4, 12), (-4, -4)$
Foci: $(-4, 4 + \sqrt{15}), (-4, 4 - \sqrt{15})$
Eccentricity: $\frac{\sqrt{15}}{8} \approx 0.484$

5) Center: $(-7, 4)$
Vertices: $(-7, 19), (-7, -11)$
Foci: $(-7, 4 + 3\sqrt{21}), (-7, 4 - 3\sqrt{21})$
Eccentricity: $\frac{\sqrt{21}}{5} \approx 0.917$

6) Center: $(4, -1)$
Vertices: $(16, -1), (-8, -1)$
Foci: $(4 + 4\sqrt{5}, -1), (4 - 4\sqrt{5}, -1)$
Eccentricity: $\frac{\sqrt{5}}{3} \approx 0.745$

7) Center: $(0, 0)$
Vertices: $(15, 0), (-15, 0)$
Foci: $(6\sqrt{6}, 0), (-6\sqrt{6}, 0)$
Eccentricity: $\frac{2\sqrt{6}}{5} \approx 0.98$

8) Center: $(0, 0)$
Vertices: $(5, 0), (-5, 0)$
Foci: $(3, 0), (-3, 0)$
Eccentricity: $\frac{3}{5} = 0.6$

9) Center: $(0, 0)$
Vertices: $(5, 0), (-5, 0)$
Foci: $(2\sqrt{6}, 0), (-2\sqrt{6}, 0)$
Eccentricity: $\frac{2\sqrt{6}}{5} \approx 0.98$

10) Center: $(0, 0)$
Vertices: $(4, 0), (-4, 0)$
Foci: $(2\sqrt{3}, 0), (-2\sqrt{3}, 0)$
Eccentricity: $\frac{\sqrt{3}}{2} \approx 0.866$

11) Center: $(8, 7)$
Vertices: $(8, 7 + \sqrt{55}), (8, 7 - \sqrt{55})$
Foci: $(8, 7 + 3\sqrt{5}), (8, 7 - 3\sqrt{5})$
Eccentricity: $\frac{3\sqrt{11}}{11} \approx 0.905$

12) Center: $(0, -6)$
Vertices: $(7, -6), (-7, -6)$
Foci: $(\sqrt{13}, -6), (-\sqrt{13}, -6)$
Eccentricity: $\frac{\sqrt{13}}{7} \approx 0.515$

13) Center: $\left(-\frac{5}{2}, \frac{11}{2}\right)$
Vertices: $\left(\frac{13}{2}, \frac{11}{2}\right), \left(-\frac{23}{2}, \frac{11}{2}\right)$
Foci: $\left(\frac{6\sqrt{5} - 5}{2}, \frac{11}{2}\right), \left(\frac{-6\sqrt{5} - 5}{2}, \frac{11}{2}\right)$
Eccentricity: $\frac{\sqrt{5}}{3} \approx 0.745$

14) Center: $(7, 4)$
Vertices: $(7, 12), (7, -4)$
Foci: $(7, 4 + 2\sqrt{7}), (7, 4 - 2\sqrt{7})$
Eccentricity: $\frac{\sqrt{7}}{4} \approx 0.661$