Algebra 2   Name_____

Assignment

Date_____ Period____

Identify the center, vertices, and foci of each.

1) $\dfrac{(x-9)^2}{144} + \dfrac{(y-7)^2}{196} = 1$

2) $\dfrac{(x-10)^2}{40} + \dfrac{(y+5)^2}{75} = 1$

3) $\dfrac{(x-5)^2}{25} + \dfrac{(y-8)^2}{49} = 1$

4) $\dfrac{x^2}{4} + \dfrac{(y-5)^2}{25} = 1$

5) $9x^2 + 4y^2 - 108x + 56y - 56 = 0$

6) $x^2 + 8y^2 - 16x + 112y + 256 = 0$

Use the information provided to write the standard form equation of each ellipse.

7) $x^2 + 4y^2 - 2x - 143 = 0$
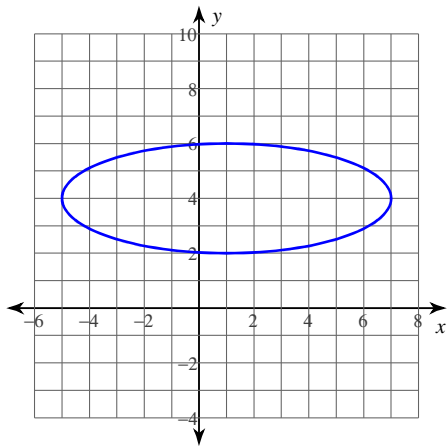
8) $9x^2 + 25y^2 - 90x + 200y - 275 = 0$

9) $x^2 + 4y^2 + 18x - 72y + 369 = 0$

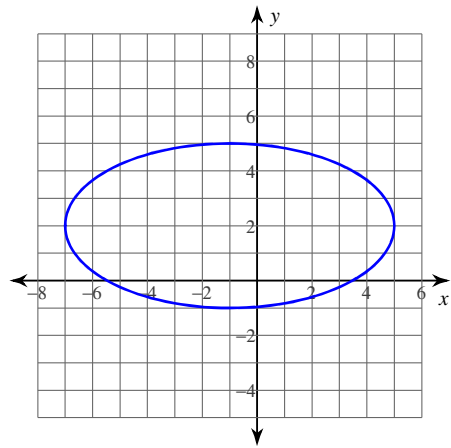10) $9x^2 + 16y^2 - 180x + 324 = 0$

11) $x^2 + 9y^2 + 6x - 72y + 117 = 0$
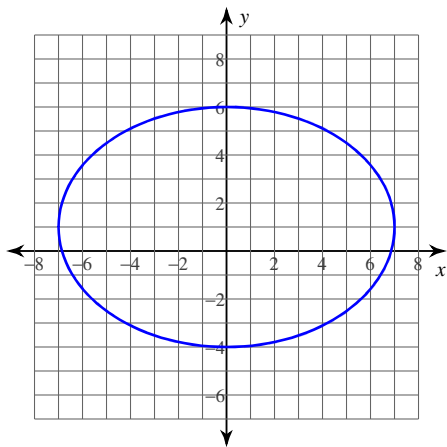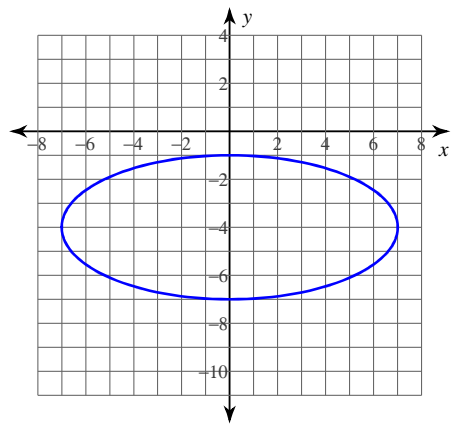
12) $x^2 + 9y^2 - 2x + 126y + 361 = 0$

13)

14)

15)

16)

17) Vertices: $(21, 9), (-1, 9)$
    Foci: $(10 + \sqrt{85}, 9), (10 - \sqrt{85}, 9)$

18) Vertices: $\left(\dfrac{41}{2}, -\dfrac{9}{2}\right), \left(-\dfrac{15}{2}, -\dfrac{9}{2}\right)$
    Foci: $\left(\dfrac{6\sqrt{19} + 13}{2}, -\dfrac{9}{2}\right), \left(\dfrac{-6\sqrt{19} + 13}{2}, -\dfrac{9}{2}\right)$

19) Center: $(6, -3)$
    Focus: $(6, -3 + 2\sqrt{5})$
    Width: 8

20) Center: $(-7, -9)$
    Focus: $(-7 + 4\sqrt{3}, -9)$
    Height: 22

21) Center: $(2, -6)$
    Focus: $(2 - \sqrt{7}, -6)$
    Width: 8

22) Center: $(-2, -5)$
    Focus: $(-2, -5 - \sqrt{21})$
    Height: 22

23) Major axis is vertical
Center: $(10, 0)$
Major axis is 16 units long
Minor axis is 14 units long

24) Minor axis is horizontal
Center: $(2, -2)$
Major axis is 24 units long
Minor axis is 20 units long

25) Endpoints of major axis: $(-6, 10), (-6, -4)$
Endpoints of minor axis: $(-2, 3), (-10, 3)$

26) Endpoints of major axis: $(7, 13), (7, -11)$
Endpoints of minor axis: $(17, 1), (-3, 1)$

Answers to Assignment (ID: 1)

1) Center: $(9, 7)$
   Vertices: $(9, 21), (9, -7)$
   Foci: $(9, 7 + 2\sqrt{13}), (9, 7 - 2\sqrt{13})$
   Major Axis: 28 units
   Minor Axis: 24 units

2) Center: $(10, -5)$
   Vertices: $(10, -5 + 5\sqrt{3}), (10, -5 - 5\sqrt{3})$
   Foci: $(10, -5 + \sqrt{35}), (10, -5 - \sqrt{35})$
   Major Axis: $10\sqrt{3}$ units
   Minor Axis: $4\sqrt{10}$ units

3) Center: $(5, 8)$
   Vertices: $(5, 15), (5, 1)$
   Foci: $(5, 8 + 2\sqrt{6}), (5, 8 - 2\sqrt{6})$
   Major Axis: 14 units
   Minor Axis: 10 units

4) Center: $(0, 5)$
   Vertices: $(0, 10), (0, 0)$
   Foci: $(0, 5 + \sqrt{21}), (0, 5 - \sqrt{21})$
   Major Axis: 10 units
   Minor Axis: 4 units

5) Center: $(6, -7)$
   Vertices: $(6, 5), (6, -19)$
   Foci: $(6, -7 + 4\sqrt{5}), (6, -7 - 4\sqrt{5})$
   Major Axis: 24 units
   Minor Axis: 16 units

6) Center: $(8, -7)$
   Vertices: $(8 + 10\sqrt{2}, -7), (8 - 10\sqrt{2}, -7)$
   Foci: $(8 + 5\sqrt{7}, -7), (8 - 5\sqrt{7}, -7)$
   Major Axis: $20\sqrt{2}$ units
   Minor Axis: 10 units

7) $\dfrac{(x-1)^2}{144} + \dfrac{y^2}{36} = 1$

8) $\dfrac{(x-5)^2}{100} + \dfrac{(y+4)^2}{36} = 1$

9) $\dfrac{(x+9)^2}{36} + \dfrac{(y-9)^2}{9} = 1$

10) $\dfrac{(x-10)^2}{64} + \dfrac{y^2}{36} = 1$

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

12) $\dfrac{(x-1)^2}{81} + \dfrac{(y+7)^2}{9} = 1$

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

14) $\dfrac{(x+1)^2}{36} + \dfrac{(y-2)^2}{9} = 1$

15) $\dfrac{x^2}{49} + \dfrac{(y-1)^2}{25} = 1$

16) $\dfrac{x^2}{49} + \dfrac{(y+4)^2}{9} = 1$

17) $\dfrac{(x-10)^2}{121} + \dfrac{(y-9)^2}{36} = 1$

18) $\dfrac{\left(x - \dfrac{13}{2}\right)^2}{196} + \dfrac{\left(y + \dfrac{9}{2}\right)^2}{25} = 1$

19) $\dfrac{(x-6)^2}{16} + \dfrac{(y+3)^2}{36} = 1$

20) $\dfrac{(x+7)^2}{169} + \dfrac{(y+9)^2}{121} = 1$

21) $\dfrac{(x-2)^2}{16} + \dfrac{(y+6)^2}{9} = 1$

22) $\dfrac{(x+2)^2}{100} + \dfrac{(y+5)^2}{121} = 1$

23) $\dfrac{(x-10)^2}{49} + \dfrac{y^2}{64} = 1$

24) $\dfrac{(x-2)^2}{100} + \dfrac{(y+2)^2}{144} = 1$

25) $\dfrac{(x+6)^2}{16} + \dfrac{(y-3)^2}{49} = 1$

26) $\dfrac{(x-7)^2}{100} + \dfrac{(y-1)^2}{144} = 1$