Algebra 2B Ch 10 Review Fall 2017

1. Write the equation of the parabola whose vertex is $(0,0)$ and focus is $(0,-4)$
2. Write the equation of the parabola whose vertex is $(0,0)$ and directrix is $x = -8$
3. State the coordinates of the focus and the equation of the directrix for the parabola $y = 9x^2$
4. State the coordinates of the focus and the equation of the directrix for the parabola $x = -\frac{1}{7}y^2$
5. Write the equation of the parabola whose vertex is $(5,-2)$ and focus is $(5,8)$
6. Write the equation of the parabola whose focus is $(1,3)$ and directrix is $x = 5$
7. State the coordinates of the vertex and focus and the equation of the directrix for the parabola $y = -3(x+4)^2 + 7$
8. State the coordinates of the vertices, co-vertices, and foci for the ellipse $\frac{x^2}{81} + \frac{y^2}{32} = 1$
9. State the coordinates of the center, vertices, co-vertices, and foci for the ellipse $\frac{(x-2)^2}{144} + \frac{(y+6)^2}{225} = 1$

Write the equation of each ellipse in 10 to 14

10. Foci are $(\pm 3, 0)$ and co-vertices are $(0, \pm 7)$
11. Major axis is 20 units long and foci are $(0, \pm 6)$
12. Center is $(-9,3)$, a vertex at $(-9,9)$ and whose minor axis is 8 units long.
13. Vertices are $(1,-4)$ and $(11,-4)$ and co-vertices are $(6,-2)$ and $(6,-6)$
14. Foci are $(-7,4)$ and $(-7,-2)$ and with major axis 16 units long.

15. State the center and radius of this circle $x^2 + y^2 = 24$
16. State the center and radius of this circle $(x+10)^2 + (y-13)^2 = 121$

Write the equation of each circle in 17 to 19

17. Center is $(11,-2)$ and the point $(5,-8)$ is on the circle.
18. Center is $(0,8)$ with a radius of 16.
19. Diameter has the following endpoints: $(-5,1)$ and $(7,9)$

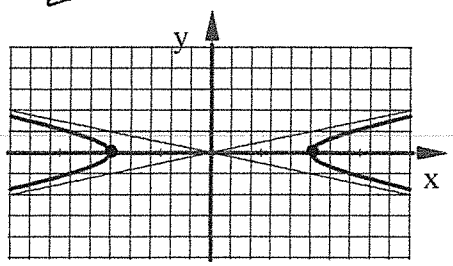
20. State the coordinates of the vertices & foci & the slopes of the asymptotes for: $\frac{x^2}{81} - \frac{y^2}{49} = 1$
21. Graph this hyperbola showing the vertices and asymptotes. $\frac{y^2}{4} - \frac{x^2}{9} = 1$
22. Write the equation of the hyperbola whose foci are $(0, \pm 7)$ and whose transverse axis is 10 units long.
23. Write the equation of the hyperbola with center at $(0,0)$, asymptotes with slopes of $\pm\frac{8}{3}$, & horizontal transverse axis.

24. State the coordinates of the center, vertices, foci and slopes of asymptotes for this hyperbola: $\frac{(y+2)^2}{16} - \frac{(x+8)^2}{100} = 1$
25. Write the equation of the hyperbola whose center is $(2,-9)$ and a focus at $(9,-9)$ and with a vertex at $(5,-9)$.

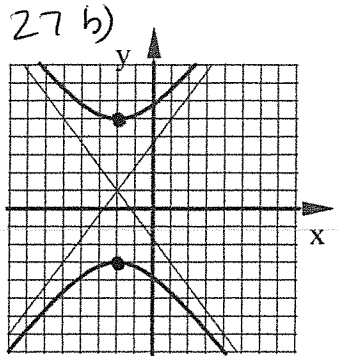
26. Write the equation of the hyperbola whose Foci are $(-7,16)$ & $(-7,-6)$ with a Vertex at $(-7,-3)$

27 Write the equation of the Hyperbolas shown. See the back.

27 a)

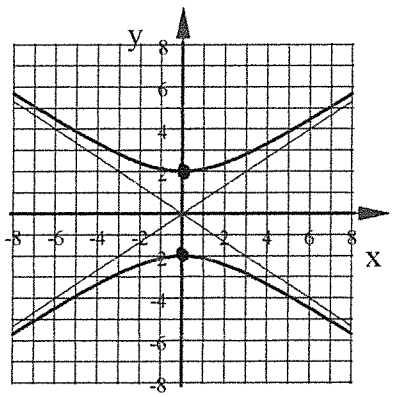


27 b)



Algebra 2B Ch 10 Review Fall 2017 ANSWERS

1. $y = -\frac{1}{16}x^2$ 2. $x = \frac{1}{32}y^2$ 3. *Focus* : $(0, \frac{1}{36})$ *Directrix* : $y = -\frac{1}{36}$
4. *Focus* : $(-\frac{7}{4}, 0)$ *Directrix* : $x = \frac{7}{4}$ 5. $y = \frac{1}{40}(x-5)^2 - 2$
6. Vertex $(3,3)$ so: $x = -\frac{1}{8}(y-3)^2 + 3$
7. *Vertex* : $(-4,7)$ *Focus* : $(-4, \frac{83}{12})$ *Directrix* : $y = \frac{85}{12}$
8. *Vertices* : $(\pm 9, 0)$ *Co – Vertices* : $(0, \pm\sqrt{32})$ or $(0, \pm 4\sqrt{2})$ *Foci* : $(\pm 7, 0)$
9. *Center* : $(2,-6)$ *Vertices* : $(2,9)\&(2,-21)$
Co – Vertices : $(-10,-6)\&(14,-6)$ *Foci* : $(2,3)\&(2,-15)$
10. $\frac{x^2}{58} + \frac{y^2}{49} = 1$ 11. $\frac{x^2}{64} + \frac{y^2}{100} = 1$ 12. $\frac{(x+9)^2}{16} + \frac{(y-3)^2}{36} = 1$
13. $\frac{(x-6)^2}{25} + \frac{(y+4)^2}{4} = 1$ 14. $\frac{(x+7)^2}{55} + \frac{(y-1)^2}{64} = 1$
15. *Center* : $(0,0)$ *Radius* $= \sqrt{24}$ or $2\sqrt{6}$ 16. *Center* : $(-10,13)$ *Radius* $= 11$
17. $(x-11)^2 + (y+2)^2 = 72$ 18. $x^2 + (y-8)^2 = 256$
19. $(x-1)^2 + (y-5)^2 = 52$ 20. *Vertices* : $(\pm 9, 0)$ *Foci* : $(\pm\sqrt{130}, 0)$ *Slope* : $\pm\frac{7}{9}$



21. $\frac{y^2}{4} - \frac{x^2}{9} = 1$ 22. $\frac{y^2}{25} - \frac{x^2}{24} = 1$ 23. $\frac{x^2}{9} - \frac{y^2}{64} = 1$
24. *Center* : $(-8,-2)$ *Vertices* : $(-8,2)\&(-8,-6)$ *Foci* : $(-8, -2 \pm \sqrt{116})$ or $(-8, -2 \pm 2\sqrt{29})$
Slopes of Asymptotes $m = \pm\frac{4}{10}$ or $\pm\frac{2}{5}$
25. $\frac{(x-2)^2}{9} - \frac{(y+9)^2}{40} = 1$ 26. $\frac{(y-5)^2}{64} - \frac{(x+7)^2}{57} = 1$
27. a) $\frac{x^2}{25} - y^2 = 1$ b) $\frac{(y-1)^2}{16} - \frac{(x+2)^2}{9} = 1$