

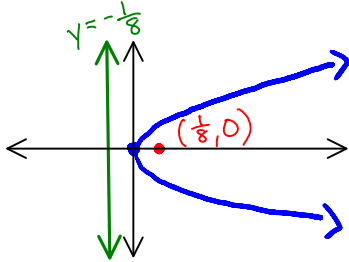
HW 10.5 #1-47 every other odd, 2-48 every other even,

Heather Graehl

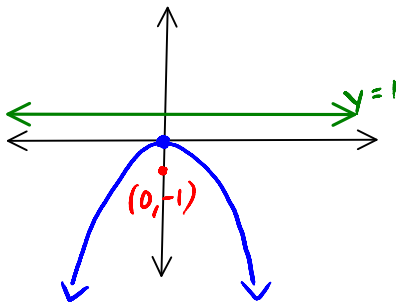
Tuesday, March 06, 2007
9:16 PM

#s 1,2,5,6,9,10,13,14,17,18,21,22,25,26,29,30,33,34,37,38,41,42,45,46

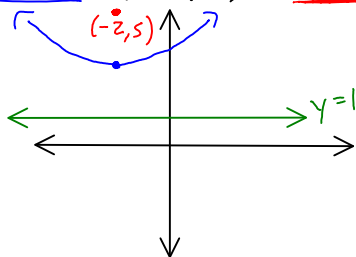
① $x = 2y^2$
 $x = \frac{y^2}{\frac{1}{2}}$ $x = \frac{y^2}{4(\frac{1}{8})}$
vertex $(0,0)$ focus $(\frac{1}{8}, 0)$ directrix $x = -\frac{1}{8}$



② $4y + x^2 = 0$
 $y = \frac{-x^2}{4}$ $y = \frac{-x^2}{4(1)}$ $y = \frac{x^2}{4(-1)}$
vertex $(0,0)$ focus $(0,-1)$ directrix $y = 1$



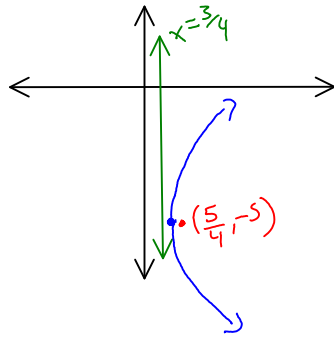
⑤ $(x+2)^2 = 8(y-3)$
 $y-3 = \frac{(x+2)^2}{4(2)}$
vertex: $(-2, 3)$ focus $(-2, 3+2) = (-2, 5)$ directrix $y = 1$



⑥ $x-1 = (y+5)^2$

$$4\left(\frac{1}{4}\right)$$

vertex $(1, -5)$ focus $(1\frac{1}{4}, -5)$ directrix $x = \frac{3}{4}$



⑨ vertex $(0, 0)$ opens to left

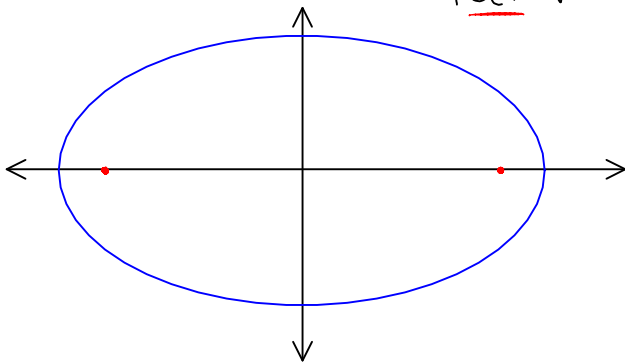
$y^2 = -x$ focus $(-\frac{1}{4}, 0)$ directrix $x = \frac{1}{4}$

⑩ vertex $(2, -2)$ opens up

$(x-2)^2 = (y+2)$ focus $(2, -\frac{7}{4})$ directrix $(2, -\frac{9}{4})$

⑬ $\frac{x^2}{9} + \frac{y^2}{5} = 1$ vertex $= 0$

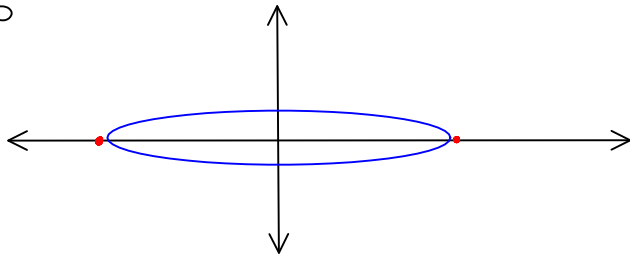
foci $= \sqrt{81-25} = (\pm\sqrt{56}, 0)$



⑭ $4x^2 + 25y^2 = 25$

foci $= \sqrt{25-4} = 1 \quad 1 \quad 7$

$$\frac{x^2}{6.25} + y^2 = 1$$



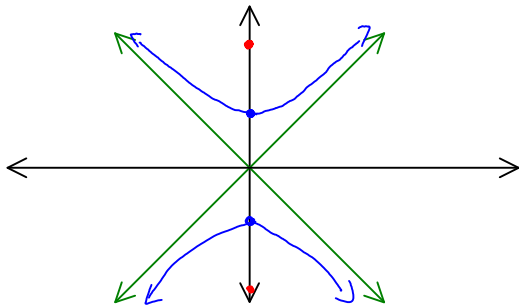
⑪ $\frac{x^2}{2} + \frac{y^2}{3} = 1$ foci $= \sqrt{9-4} = (\sqrt{5}, 0)$

⑫ $\frac{(x-2)^2}{3} + \frac{(y-1)^2}{2} = 1$ foci $\sqrt{9-4} = \sqrt{5}$
 $(2 \pm \sqrt{5}, 1)$

⑬ $y^2 - x^2 = 4$
 $\frac{y^2}{(2)^2} - \frac{x^2}{(2)^2} = 1$

vertices $(0, \pm 2)$

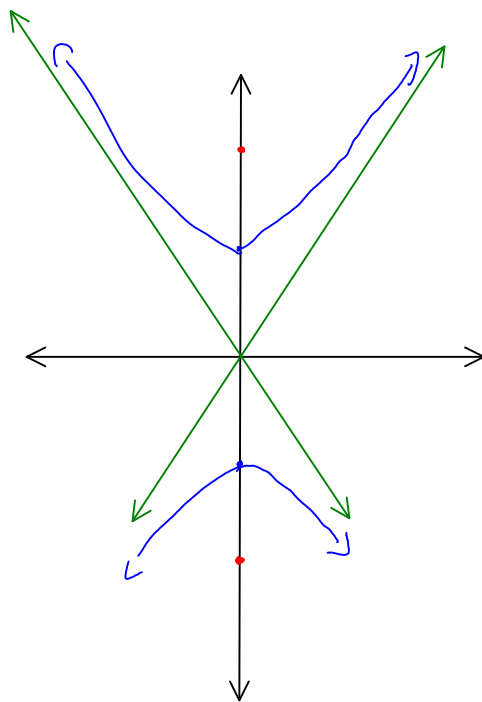
foci $= (0, 2 \pm \sqrt{8})$ asymptotes $y = x$



⑭ $9x^2 - 4y^2 = 36$

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

vertex $(\pm 2, 0)$ foci $= (2 + \sqrt{13}, 0) (-2 - \sqrt{13}, 0)$ directrix $\pm \frac{3}{2}$



25) $x^2 = y + 1$

parabola

vertex $(0, -1)$ focus $(0, 0), (0, -1)$

26) $x^2 = y^2 + 1$

$x^2 - y^2 = 1$

vertex $(0, 0)$ focus $(\pm 1, 0)$

29) $y^2 + 2y = 4x^2 + 3$

$y^2 + 2y - 4x^2 - 3 = 0$

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

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

$(y+1)^2 - 4x^2 - 3 = 1$

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

hyperbola vertex $(0, 1), (0, 3)$ focus $(0, -1 \pm \sqrt{5})$

30) $4x^2 + 4x + y^2 = 0$

$4(x^2 + x) + y^2 = 0$

$4(x^2 + x + (\frac{1}{2})^2 - (\frac{1}{2})^2) + y^2 = 0$

$4(x + \frac{1}{2})^2 - 1 + y^2 = 0$

$$4\left(x+\frac{1}{2}\right)^2 - \frac{1}{4} + y^2 = 0$$

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

$$16\left(x+\frac{1}{2}\right)^2 + 4y^2 = 1$$

$$\frac{\left(x+\frac{1}{2}\right)^2}{\frac{1}{16}} + \frac{y^2}{\frac{1}{4}} = 1$$

$$c^2 = \frac{1}{256} + \frac{1}{16} \quad c = \sqrt{\frac{17}{256}}$$

ellipse vertex $\left(-\frac{1}{2}, 0\right)$ foci $\left(\frac{1}{16} + \frac{\sqrt{17}}{256}, 0\right)$

32) Parabola vertex $(0,0)$ focus $(0,-2)$

$$x^2 = -8y$$

33) Parabola focus $(-4,0)$ directrix $x=2$

$$y^2 = -12(x+1)$$

34) Parabola focus $(3,6)$ vertex $3,2$

$$x^2 = 16y$$

37) Ellipse foci $(\pm 2, 0)$ vertices $(\pm 5, 0)$

$$\frac{x^2}{25} + \frac{y^2}{21} = 1$$

$$2^2 = 25 - b^2$$

$$4 - 25 = -b^2$$

$$21 = b^2 \quad b = \sqrt{21}$$

38) Ellipse foci $(0, \pm 5)$ vertices $(0, \pm 13)$

$$\frac{x^2}{144} + \frac{y^2}{169} = 1$$

$$25 = 169 - b^2$$

$$b = 12$$

41) Ellipse center $(2,2)$ focus $(0,2)$ vertex $(5,2)$

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

42) Ellipse foci $(\pm 2, 0)$ passing through $(2,1)$

④⑤ Hyperbola foci $(1,3)$ & $(7,3)$ vertices $(2,3)$ and $(6,3)$

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

④⑥ Hyperbola foci $(2,-2)$ & $(2,8)$ vertices $(2,0)$ and $(2,6)$

$$\frac{(x-2)^2}{36} - \frac{y^2}{32} = 1$$

$$4 = 36 - b^2$$

$$b^2 = 32$$