

Algebra 2

10.3 & 10.4 Worksheet: Ellipses & Hyperbolas

Name: Key Hour: _____

Get the following ellipses into standard form, and then sketch their graphs.

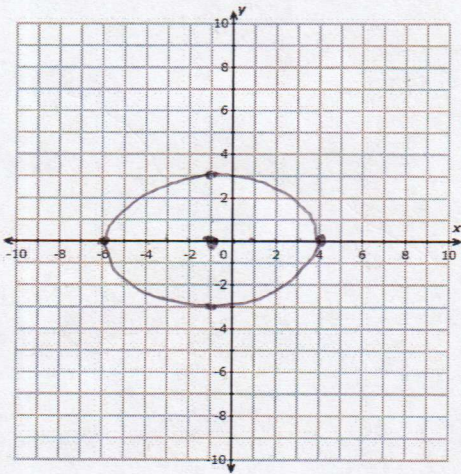
1. $\frac{(x+1)^2}{25} + \frac{y^2}{9} = 1$

center: $(-1, 0)$

$\sqrt{25} = 5$

$\sqrt{9} = 3$

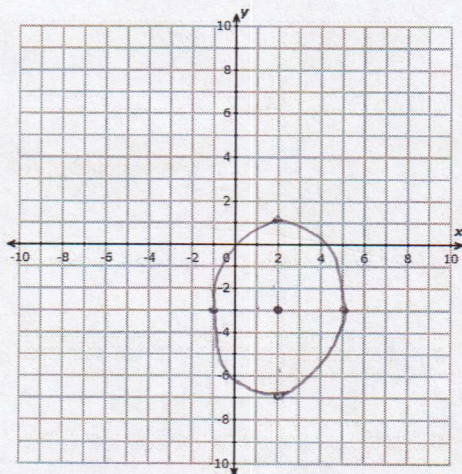
(already in standard form)



2. $\frac{16(x-2)^2}{144} + \frac{9(y+3)^2}{144} = \frac{144}{144}$

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

center: $(2, -3)$

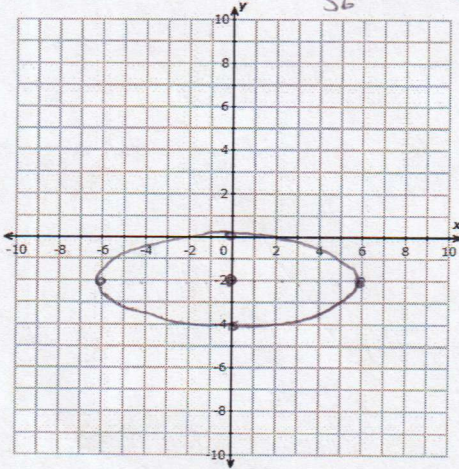


3. $36 - 9(y+2)^2 = x^2 + 9(y+2)^2 + 9(y+2)^2$

$\frac{36}{36} = \frac{x^2}{36} + \frac{9(y+2)^2}{36}$

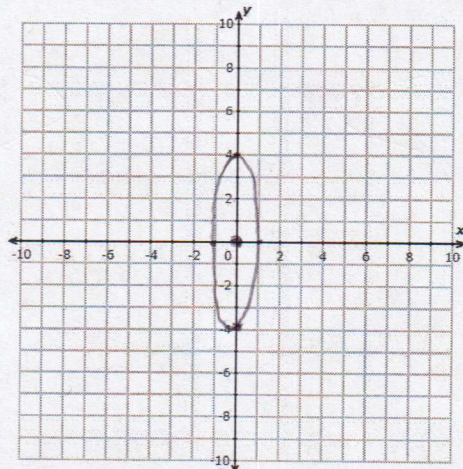
Standard form:

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



4. $\frac{16x^2}{16} + \frac{y^2}{16} = \frac{16}{16}$

Standard form: $\frac{x^2}{1} + \frac{y^2}{16} = 1$

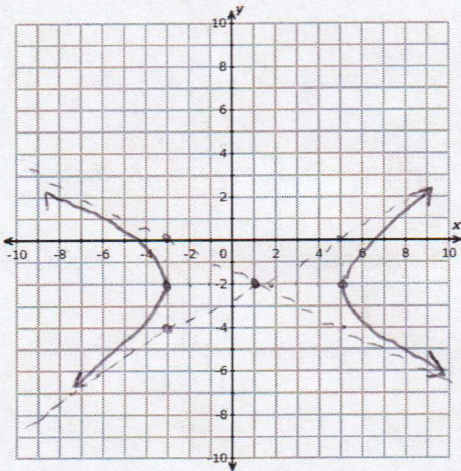


Get the following hyperbolas in standard form, and then sketch their graphs.

$$5. \frac{(x-1)^2}{16} - \frac{(y+2)^2}{4} = 1$$

"center" : (1, -2)

↪ ↻ out 4, up/down 2
(already in standard form)

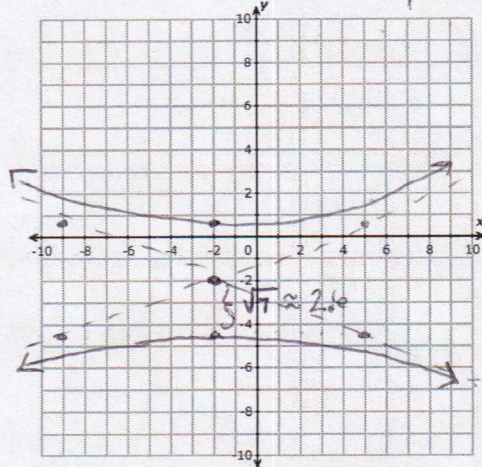


$$6. 49 + (x+2)^2 = 7(y+2)^2 - (x+2)^2$$

$$\frac{49}{49} = \frac{7(y+2)^2}{49} - \frac{(x+2)^2}{49}$$

Standard form:

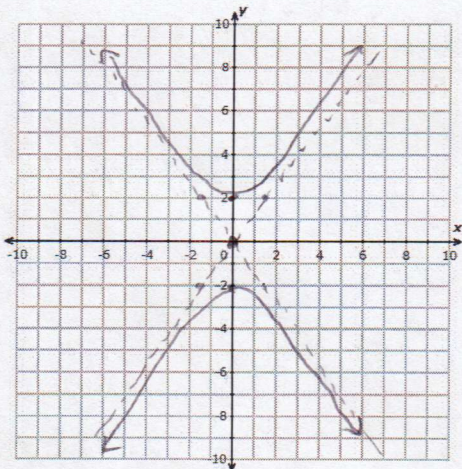
$$1 = \frac{(y+2)^2}{7} - \frac{(x+2)^2}{49}$$



$$7. \frac{y^2}{4} - \frac{2x^2}{4} = \frac{4}{4}$$

Standard form: $\frac{y^2}{4} - \frac{x^2}{2} = 1$

center (0,0)
↻ ↻ 2
↪ ↻ sqrt(2)
1.4



$$8. \frac{(x+1)^2}{9} - 4(y-2)^2 = \frac{4}{4} \quad \frac{(x+1)^2}{36} - \frac{(y-2)^2}{1} = 1$$

Standard form: $\frac{(x+1)^2}{36} - \frac{(y-2)^2}{1} = 1$

