

Algebra 3 Assignment # 4

Write the equation of the hyperbola which satisfies each of the following please.

(1) Foci are $(-3, 2)$ and $(1, 2)$, the length of the transverse axis is 2

(2) Vertices are $(-1, 3)$ and $(-1, -1)$, one focus is $(-1, 5)$

(3) Vertices are $(-6, 2)$ and $(0, 2)$, one focus is $(2, 2)$

(4) Vertices are $(-2, -3)$ and $(4, -3)$, slopes of the asymptotes are $\pm \frac{2}{3}$

(5) Foci are $(1, 8)$ and $(1, -2)$, one vertex is $(1, 5)$

(6) Vertices are $(-4, -2)$ and $(-4, 2)$, the length of the conjugate axis is 2

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Answers

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

$$(2) \frac{(y - 1)^2}{4} - \frac{(x + 1)^2}{12} = 1$$

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

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

$$(5) \frac{(y - 3)^2}{4} - \frac{(x - 1)^2}{21} = 1$$

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