MTH 201  
Bijan Zandi  
Section 10.4

**2 Cases for Hyperbola when Center is (0, 0)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Foci | Vertices | Equation | Asymptotes | Shape |
| (-c, 0) and  (c, 0) | (-a, 0) and (a, 0)  Transverse axis is x – axis  b2 = c2 – a2 |  |  |  |
| ( 0, -c) and  (0, c) | (0, -a) and (0, a)  Transverse axis is y– axis  b2 = c2 – a2 |  |  |  |

**2 Cases for Hyperbola when Center is (h, k)**

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| --- | --- | --- | --- |
| Foci | Vertices | Equation | Asymptotes |
| (h + c, k) and  (h - c, k) | (h + a, k) and (h – a, k)  Transverse Parallel to x-axis  b2 = c2 – a2 |  |  |
| (h, k + c) and  (h, k - c) | (h, k + a) and (h, k – a)  Transverse Parallel to y-axis  b2 = c2 – a2 |  |  |