MTH 201  
Bijan Zandi  
Section 10.4

**4 Cases for Parabola when Vertex is (0, 0)**

|  |  |  |  |
| --- | --- | --- | --- |
| Focus | Directrix | Equation | Shape |
| (p, 0) | x = -p (vertical) |  | case1Parabola.jpg |
| (-p, 0) | x = p (vertical) |  | case2parabola.jpg |
| (0, p) | y = -p (horizontal) |  | case3parabola.jpg |
| (0, -p) | y = p (horizontal) |  | case4parabola.jpg |

**4 Cases for Parabola when Vertex is (h, k)**

|  |  |  |  |
| --- | --- | --- | --- |
| Focus | Directrix | Equation | Shape |
| (h + p, k) | x = h - p (vertical) |  | case1Parabolahk.jpg |
| (h - p, k) | x = h + p (vertical) |  | case2parabolahk.jpg |
| (h, k + p) | y =k - p (horizontal) |  | case3parabolahk.jpg |
| (h, k - p) | y = k + p (horizontal) |  | case4parabolahk.jpg |