**Openers #11 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

*Each day when you come into class, there will be a problem projected for you to complete. Find the appropriate box to complete the problem in and work on it when you arrive.*

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| **Date:**  **\_\_\_\_ / \_\_\_\_/ \_\_\_\_** | 11-1  Find the vertex, focus, and directrix of the parabola. Sketch its graph, showing the focus and the directrix.   1. (y+1)2 = -12(x+2) b) y2 – 4y – 2x – 4 = 0   Find an equation of the parabola that satisfies the given conditions.   1. Vertex V(-2,3); directrix y = 5 b) Vertex V(1,-2); focus F(1,0) |
| **Date:**  **\_\_\_\_ / \_\_\_\_/ \_\_\_\_** | 11-2  Find the vertices and foci of the ellipse. Sketch the ellipse, showing the foci.   1. y2 + 9x2 = 9 b) x2 + 2y2 + 2x – 20y + 43 = 0   11-2 (continued…)  Find an equation for the ellipse that has its center at the origin and satisfies the given conditions.   1. Vertices V(0, ±7) ; foci F(0, ±2) b) Foci F(±3,0) ; minor axis of length 2 |
| **Date:**  **\_\_\_\_ / \_\_\_\_/ \_\_\_\_** | 11-3  Find the vertices, the foci, and the equations of the asymptotes of the hyperbola. Sketch its graph, showing the asymptotes and the foci.   1. X2 – 2y2 = 8 b) y2 – 4x2 -12y – 16x + 16 = 0   11-3 (continued…)  Find an equation for the hyperbola that has its center at the origin and satisfies the given conditions.   1. Foci F(0, ±3); vertices V(0, ±2) b) Vertices V(±4,0); passing through (8,2) |
| **Date:**  **\_\_\_\_ / \_\_\_\_/ \_\_\_\_** | 11-5  Change the polar coordinates to rectangular coordinates.   1. (4, -π/4) b) (-2, 7π/6)   Change the rectangular coordinates to polar coordinates with r>0 and 0≤θ≤2π.   1. (-2 -2) b) (-4, 4)   Find a polar equation that has the same graph as the equation in x and y.   1. x2 + y2 = 2   11-5 (continued…)   1. x2= 8y   Find an equation in x and y that has the same graph as the polar equation.   1. r=2 b) r2(cos2θ + 4sin2θ) = 16   Sketch the graph of the polar equation.   1. r=5 b) r = -2 sin θ |