

I'd like you to do a nice workup for these problems on unruled (unlined paper). I'll provide the copier paper, if you need it. The important thing, here, is to submit nice, organized work.

1. **4.1** Add. $(3 + 2i) + (2 - 7i)$
2. **4.1** Multiply $(3 + 2i)(2 - 7i)$
3. **4.1** Write in the standard form $a + bi$. $\frac{3 + 2i}{2 - 7i}$
4. **4.3** Write the complex number in trigonometric form. $7 - 2i$. Use degrees. Round to the nearest degree.
5. **4.3** Find the standard form for $13(\cos 225^\circ + i \sin 225^\circ)$
6. **4.3** Multiply. $3\left(\cos\left(\frac{\pi}{6}\right) + i \sin\left(\frac{\pi}{6}\right)\right) \cdot 7\left(\cos\left(\frac{3\pi}{4}\right) + i \sin\left(\frac{3\pi}{4}\right)\right)$. Leave your answer in trigonometric form.

7. **4.4** Find the 4th roots of $\sqrt{3} - i$. Leave in trig form. Round to the nearest degree.
8. **4.4** Find the power. Leave your answer in trigonometric form. $2(\cos 30^\circ + i \sin 30^\circ)^5$
9. **6.2** Find the vertex, focus and directrix. Then ketch the graph of $y = x^2 + 6x - 3$
10. **6.2** The receiver in a *big* parabolic dish is 5 feet from the from the vertex. Write an equation for a cross-section (parabolic) of the dish. Assume the vertex is resting on the origin in your coordinate system.

11. **6.3** Find the center, foci, and eccentricity of the ellipse. Sketch its graph.

$$16x^2 + 25y^2 - 32x + 50y + 16 = 0$$

12. **6.4** Find the center, vertices, foci, and the equations of the asymptotes, and then sketch the hyperbola given by the equation $x^2 - 9y^2 + 36y - 72 = 0$