University of Lethbridge
Department of Mathematics and Computer Science
MATH 1410 - Tutorial #2
Wednesday, January 24

Please answer the problems on the back of this page to the best of your ability. You are encouraged to use scrap paper to do calculations and organize your work, but all work to be graded must be done on this worksheet.

Additional practice: (**do not submit**).

1. Solve for z, if $(2+3i) = 4 + \frac{(2-i)z}{4z}$.
2. Solve for z, if $(1-3i)z + 2i\overline{z} = 4$.
3. Compute the magnitude $\|\vec{v}\|$ of the vector $\vec{v} = \langle 2, -3, 1\rangle$. Then find a unit vector $\vec{u}$ in the direction of $\vec{v}$

1. Given $z = 2 - 2i$ and $w = \sqrt{3} + i$, compute the following.
   Answers can be left in either rectangular or polar form.

   (a) $2z - 3\overline{w}$

   (b) $\dfrac{z}{w^3}$

   (c) All 3 cube roots of w.

2. Compute the vector $\overrightarrow{AB}$, where $A = (2, -1, 3)$ and $B = (-4, 5, 2)$.

3. Given $\vec{v} = \langle 2, -1, 4 \rangle$ and $\vec{w} = \langle -1, 3, 0 \rangle$, compute:

   (a) $2\vec{v} - 3\vec{w}$.

   (b) $\|\vec{v}\|$

   (c) A vector in the same direction as $\vec{v}$, but three times as long.