

Written HW1 – MATH 3503 Fall 2021

**Due by Monday, 16 August for timely completion credit**

1. Let  $\vec{a} = \langle 1, 5, 3 \rangle$  and let  $\vec{b} = \langle -1, 2, 5 \rangle$ . Compute  $3\vec{a} - 2\vec{b}$ .
2. Sketch a picture of  $\vec{a} = \langle 1, 2 \rangle$  and place  $\vec{b} = \langle -1, 5 \rangle$  in the same picture. In your sketch (or a second one), draw the vector addition  $\vec{a} + \vec{b}$  by attaching them correctly (as in the “physicist’s interpretation” of vector addition).
3. Find all  $t$  such that  $\langle t, \sqrt{t+1} - 1 \rangle = \langle t, t \rangle$ .
4. Let  $A = (1, 1, -3)$  and  $B = (1, -2, 0)$  be points in  $\mathbb{R}^3$ . Use CalcPlot3D (linked on course webpage) to plot  $A$  and  $B$  and the vector  $\vec{AB}$ .