

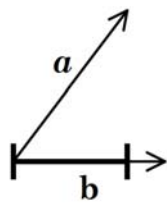
## Activity 13 Projection

1.

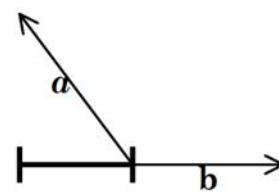
- a)  $[-12.94, -3.70]$  N
- b) 135 N down the slope. Therefore no, the block will not slide down the slope.

2.

a)

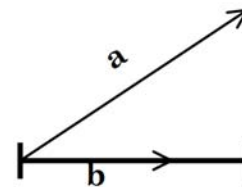
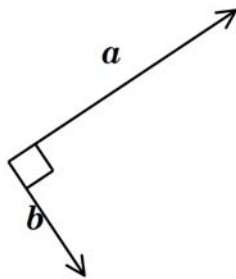


b)



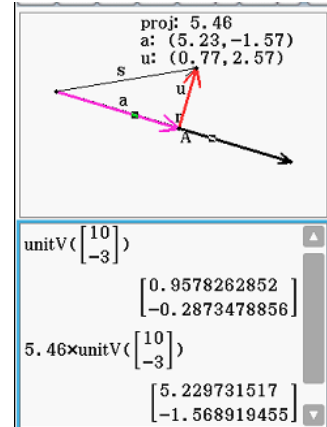
c) The projection is 0

d)



3.

- a) 5.46
- b) [5.23, -1.57]
- c) [0.77, 2.57]
- d)  $\left[ \frac{10\sqrt{109}}{109}, \frac{-3\sqrt{109}}{109} \right]$  or [0.96, -0.29]
- e) [5.23, -1.57]



4.

- a)  $\overline{OC} = |\mathbf{b}| \cos \theta$
- b)  $\overline{OC} = \frac{\mathbf{a} \cdot \mathbf{b}}{|\mathbf{a}|} \left( \frac{|\mathbf{a}||\mathbf{b}| \cos \theta}{|\mathbf{a}|} = |\mathbf{a}| \cos \theta \right)$
- c)
  - (i) 5
  - (ii) -3
  - (iii) 0
  - (iv)  $\frac{8}{\sqrt{13}} \approx 2.22$

