

# Math 233 - Quiz 1

August 21, 2025

Name \_\_\_\_\_

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary.

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1. (1 point) The vector  $\vec{u} = \langle 3, -5 \rangle$  has initial point  $(10, -6)$ . Find its terminal point.
  
  
  
  
  
  
  
  
  
  
2. (4 points) Let  $\vec{w}$  be the vector from  $P(-2, 7)$  to  $Q(3, -1)$ .
  - (a) Find the component form of  $\vec{w}$ .
  
  
  
  
  
  
  
  - (b) Compute  $\|\vec{w}\|$ .
  
  
  
  
  
  
  
  - (c) Find a unit vector whose direction is opposite that of  $\vec{w}$ .
  
  
  
  
  
  
  
  - (d) Compute  $\|2\vec{w}\|$ .
  
  
  
  
  
  
  
  
  
  
3. (2 points) Find a vector of length 13 that has the direction of  $\vec{v} = \langle 4, -3 \rangle$ .
  
  
  
  
  
  
  
  
  
  
4. (1 point) Fill in the appropriate words: A vector is uniquely determined by its \_\_\_\_\_ and \_\_\_\_\_.
  
  
  
  
  
  
  
  
  
  
5. (2 points) Let  $\vec{x} = \langle 2, 1 \rangle$  and  $\vec{y} = \langle 2, -2 \rangle$ . Compute  $\|2\vec{x} - 4\vec{y}\|$ .