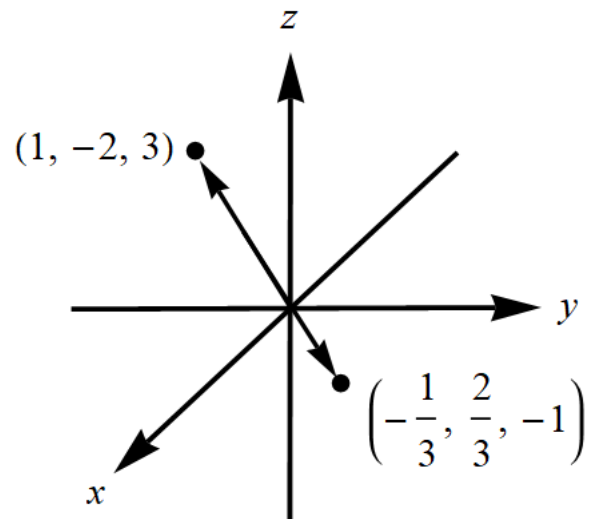


**Exercise 10**

Sketch  $(1, -2, 3)$  and  $(-\frac{1}{3}, \frac{2}{3}, -1)$ . Why do these vectors point in opposite directions?

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**Solution**

If the vector  $(-\frac{1}{3}, \frac{2}{3}, -1)$  is multiplied by  $-3$ , the vector  $(1, -2, 3)$  is obtained. The minus sign makes the vector point in the opposite direction, and multiplying by 3 triples the vector's length.