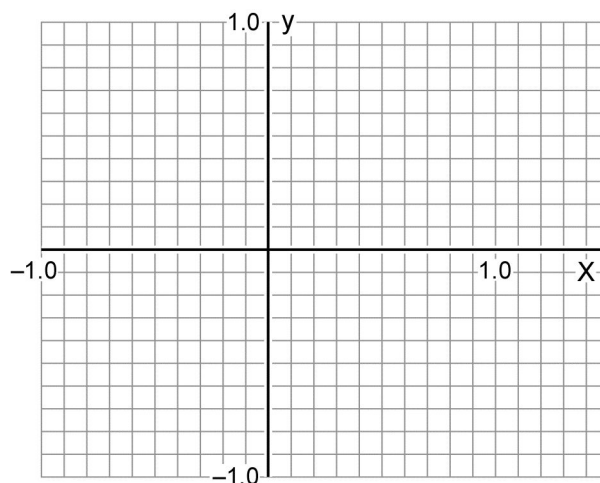


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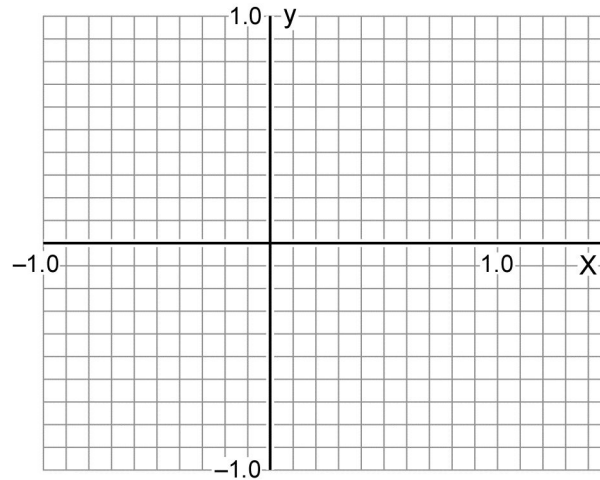
Worksheet

1. Given the coordinates of vector $a = \{1.2, 3.4, 2.8\}$, what would be the coordinates of the head of vector a if we moved its origin to a new location at $\{4, -7, 12\}$?
2. Given vector $a = \{1.2, 3.4, 2.8\}$, what is the length of a ?
3. What are the coordinates of the unit vector associated with a , as defined in question 2?
4. Given $a = \{2.3, 3.4, 5.1\}$ and $b = \{4.2, 6.1, 2.7\}$, what is the vector result of $a + b$?
5. Using the vectors a and b specified in question 4 and letting $c = \{-1.7, 2.8, -3.5\}$, what is the vector result of $(a + b + c)$.
6. If $b = \{4.2, 6.1, 2.7\}$, what are the coordinates of vector $-b$?
7. Using the vectors a and b specified in question 4, what is the vector result of $a - b$?
8. Let $a = \{1.1, -0.3, 0\}$ and $b = \{0.2, 0.5, 0\}$, accurately draw vectors a and b and graphically solve $a + b$ on the graph below.



9. Using vectors a and b as specified in problem 8, accurately draw the vectors and graphically solve $a - b$ on the graph above.

10. Using the vectors a and b specified in question 8 and given $c = \{-0.8, 0.6, 0\}$, what is the vector result of $(a + b + c)$? Find the sum arithmetically and graphically, using the space below.



11. What is the result of dot product $a \cdot b$ where $a = \{1.1, -0.3, 0\}$ and $b = \{0.2, 0.5, 0\}$?
12. What is the angle between vectors a and b , as defined in question 11?
13. Given $c = a \times b$, what are the coordinates of c ?
14. What is the length of c , as defined in question 13?