

1. Calculate: $\frac{\frac{1}{2} - \frac{1}{3} + \frac{1}{4}}{\frac{1}{2} + \frac{1}{3} + \frac{1}{4}} - \frac{1}{13} =$

2. Plot vectors $\vec{g}=(2,5)$, $\vec{m}=(-1,3)$, and $\vec{x}=(1,-4)$

Find and plot vectors ...

... $\vec{g}+\vec{m} = (\quad , \quad)$

... $\vec{x}+\vec{g} = (\quad , \quad)$

... $\vec{x}+\vec{m} = (\quad , \quad)$

... $\vec{m}+\vec{m} = (\quad , \quad)$

Properties of vectors:

I. To multiply a vector by a number each coordinate of the vector has to be multiplied by this number:

$$\beta \times \vec{a}(x,y) = (\beta \cdot x, \beta \cdot y)$$

II. Subtracting a vector is the same as adding an opposite vector:

$$\vec{m} - \vec{n} = \vec{m} + (-\vec{n})$$

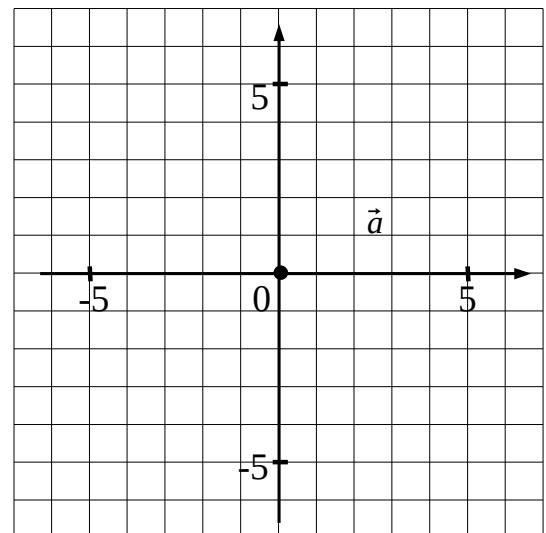
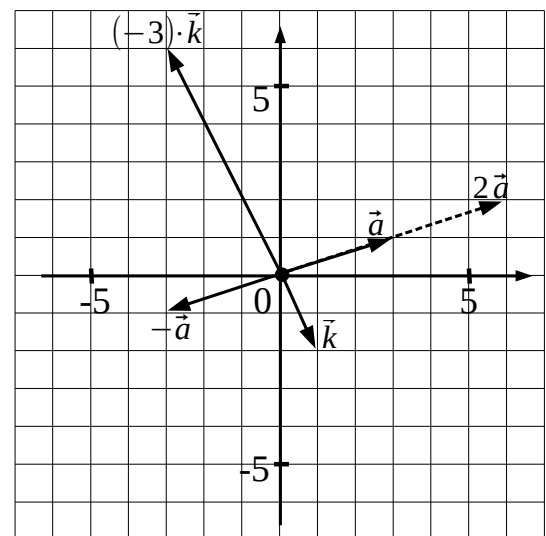
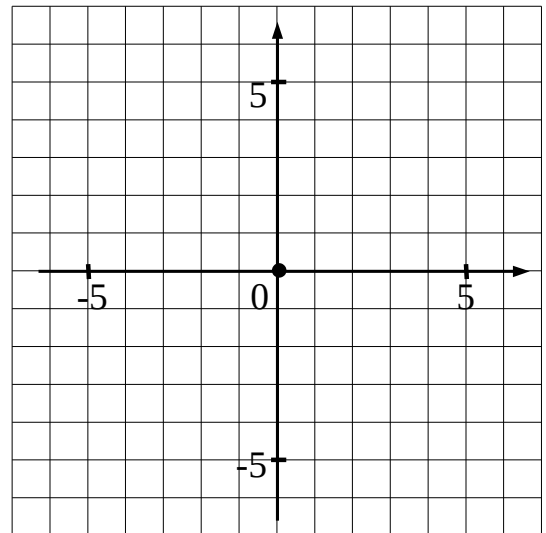
3. Consider vectors $\vec{g}=(2,3)$, $\vec{m}=(-2,3)$, and $\vec{x}=(1,-2)$

Calculate and plot vectors:

$$2\vec{g} = (\quad , \quad)$$

$$-\vec{m} = (\quad , \quad)$$

$$2 \cdot \vec{x} = (\quad , \quad)$$



4. Calculate the following vectors:

$$\vec{a} = (3, 1) \quad , \quad \vec{b} = (3, -1) \quad ,$$

$$\vec{g} = (0, 3) \quad , \quad \vec{e} = (-1, 0) \quad .$$

$$\vec{a} + \vec{b} = \underline{\hspace{2cm}}$$

$$\vec{a} - \vec{b} = \underline{\hspace{2cm}}$$

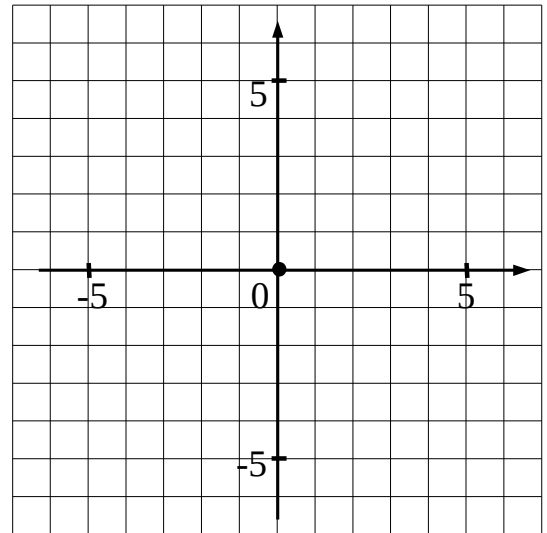
$$\vec{a} + \vec{e} = \underline{\hspace{2cm}}$$

$$\vec{a} - \vec{e} = \underline{\hspace{2cm}}$$

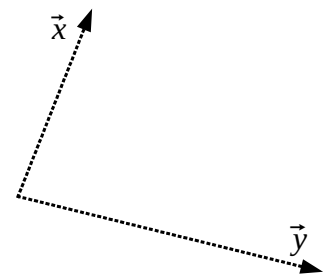
$$\vec{g} + \vec{a} = \underline{\hspace{2cm}}$$

$$\vec{a} + \vec{a} = \underline{\hspace{2cm}}$$

$$\vec{g} + 2 \cdot \vec{a} = \underline{\hspace{2cm}}$$



5. Plot vector $\vec{x} - \vec{y}$, and $2 \cdot \vec{x} + \vec{y}$ using the rule of parallelogram with the help of a compass and a straight edge.



6. Solve the equation:

$$|3x - 1| + 2x = 4$$