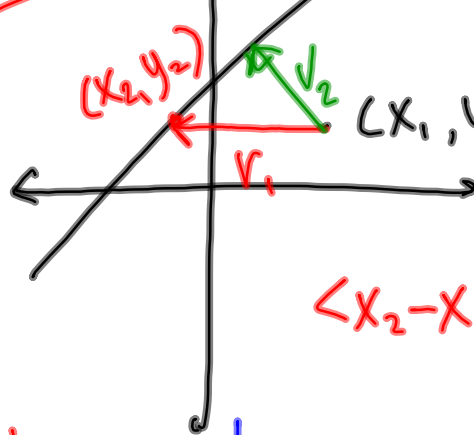


$P(x_1, y_1)$

$$ax + by + c = 0$$

$$d = \frac{|ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}}$$

$$* ax_2 + by_2 + c = 0$$



$$ax + by + c = 0$$

$$y = -\frac{ax}{b} + \square$$

$$\downarrow m_L = \frac{b}{a}$$

$$\langle a, b \rangle$$

$$\langle x_2 - x_1, y_2 - y_1 \rangle$$

$$ax_2 + by_2 = -c \quad | \text{Proj}_{v_2} v_1 | = \left| \frac{v_1 \cdot v_2}{|v_2|} \right|$$

$$= \frac{|ax_2 - ax_1 + by_2 - by_1|}{\sqrt{a^2 + b^2}}$$

$$= \frac{|-ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}}$$

Cross product.

$$A = \langle 2, 3, 0 \rangle$$

$$B = \langle -1, 5, 0 \rangle$$

$$A \times B = \langle 0, 0, \underline{13} \rangle$$

$$\underline{A} = \langle a_1, a_2, a_3 \rangle$$

$$B = \langle b_1, b_2, b_3 \rangle$$

$$\underline{A \times B} = \langle a_2 b_3 - a_3 b_2, a_3 b_1 - a_1 b_3, a_1 b_2 - a_2 b_1 \rangle$$

$$A \cdot (A \times B) = ?$$

$$= \cancel{a_1 a_2 b_3} - \cancel{a_1 a_3 b_2} + \underline{a_2 a_3 b_1} - \cancel{a_1 a_2 b_3} + \cancel{a_1 a_3 b_2} - \underline{a_2 a_3 b_1} = 0$$

$$B \times A = -(A \times B)$$

