1 | **Dot product:**

- Name: dot product
- Result: Scalar
- Interpretation (what it measures): parallelity
  - the more parallel the larger the dot product
- Magnitude (with sign): $|\vec{a}||\vec{b}|cos(\theta)$
- Geometric magnitude: $|\vec{a}||\vec{b}_{\|\vec{a}}|$
- Direction: no direction
- Algebraic form: $a_x b_x + a_y b_y + a_z b_z$
- Algebraic properties:
  - commutative
  - associative
  - distributive across addition

2 | **Cross product:**

- Name: Cross product
- Result: Vector
- Interpretation (what it measures): Orthgonality
  - the more orthogonal the longer the cross product
- Magnitude (with sign): $|\vec{a}||\vec{b}|\sin(\theta)$
- Geometric Magnitude: $|\vec{a}||\vec{b}_{\perp\vec{a}}|$
- Direction: perpendicular to the two vectors
  - by the right hand rule by rotating the first vector into the second vector