

Task: Determine if yellow point p3 should be included in convex hull.

Form two vectors:

$p1 \rightarrow p2$

$p2 \rightarrow p3$

Compute their cross product

$$A \times B = \|A\| \|B\| \sin(\theta)$$

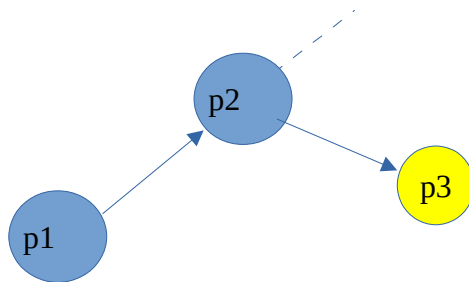
where n is the normal vector.

notice the sine of the angle is proportional to the cross product.

Consider dotted reference line showing 180 degrees.

If cross product is **negative** (forms angle between 180-360 degrees), then the three points are rotating right in a clockwise direction, which would add **concave angle** to the polygon. We would not add this point to the convex hull.

Negative cross product – do not add to convex hull



Positive cross product – add to convex hull

