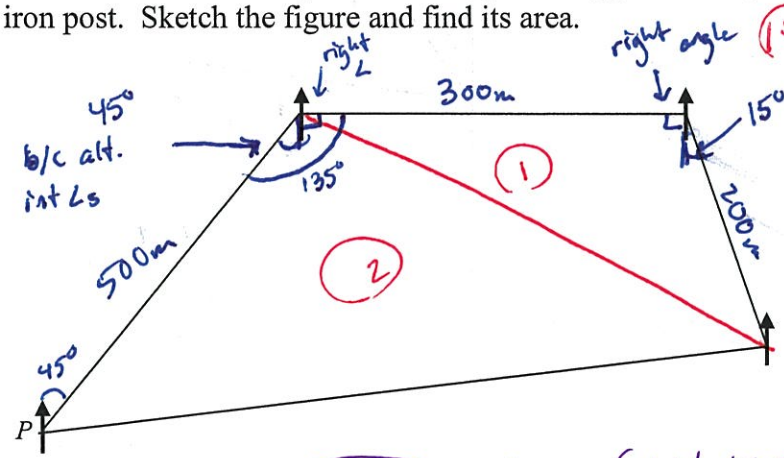
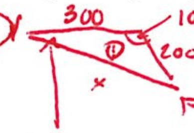
Name: Key

implies 45°

4.7 Area of a quad. example

From an iron post, proceed 500 m northeast to the brook, then 300 m east along the brook to the old mill, then 200 m S15°E to a post on the edge of Wiggin's Road, and finally along Wiggin's Road back to the iron post. Sketch the figure and find its area.





$x^2 = 300^2 + 200^2 - [2(200)(300)\cos 105°]$

$x = 401.3$

∠ is 46°

$\frac{\sin \angle Y}{200} = \frac{\sin 105°}{401.3}$

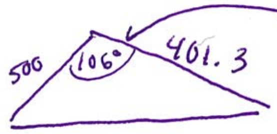
$\angle Y = 29°$

Area of Δ1:

$\frac{1}{2}(200)(300)\sin 105$

28977.77479

Now:



135° − ∠Y (which is 29°)

Area of Δ2: $\frac{1}{2}(500)(401.3)\sin 106°$

96443.54853

Area of Quad:

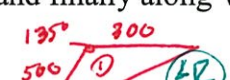
Δ1 + Δ2 = $\boxed{125421.3233 \text{ units}^2}$

Name:

If you cut it this way:

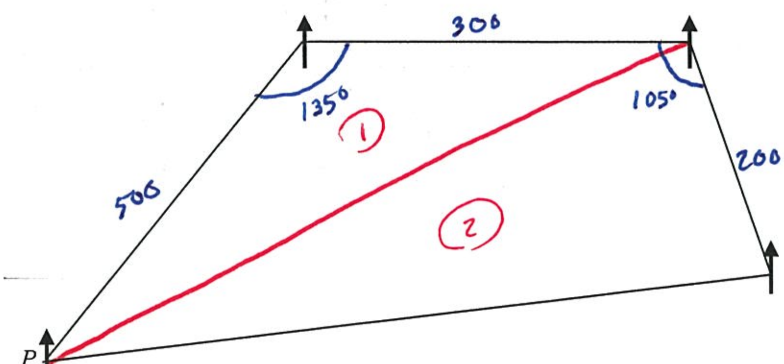
4.7 Area of a quad. example

From an iron post, proceed 500 m northeast to the brook, then 300 m east along the brook to the old mill, then 200 m S15°E to a post on the edge of Wiggin's Road, and finally along Wiggin's Road back to the iron post. Sketch the figure and find its area.



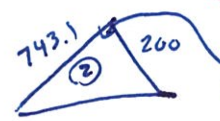
$x^2 = 300^2 + 500^2 - [2(300)(500)\cos 135°]$

$x = 743.1$



Area of Δ1 = $\frac{1}{2}(300)(500)\sin 135°$

= 53033.00859



105° − 28° = 77°

Area of Δ2 = $\frac{1}{2}(743.1)(200)\sin 77°$

= 72401.14017

∠R: $\frac{\sin R}{500} = \frac{\sin 135°}{743.1}$

∠R = 28°

Area of Quad:

Δ1 + Δ2 = $\boxed{125434.1488 \text{ units}^2}$