Finding Angles

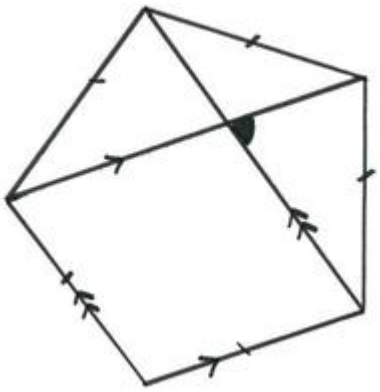
Annotation

Briar uses the angle properties of polygons to calculate an angle. She is able to explain her process, giving a chain of reasoning.

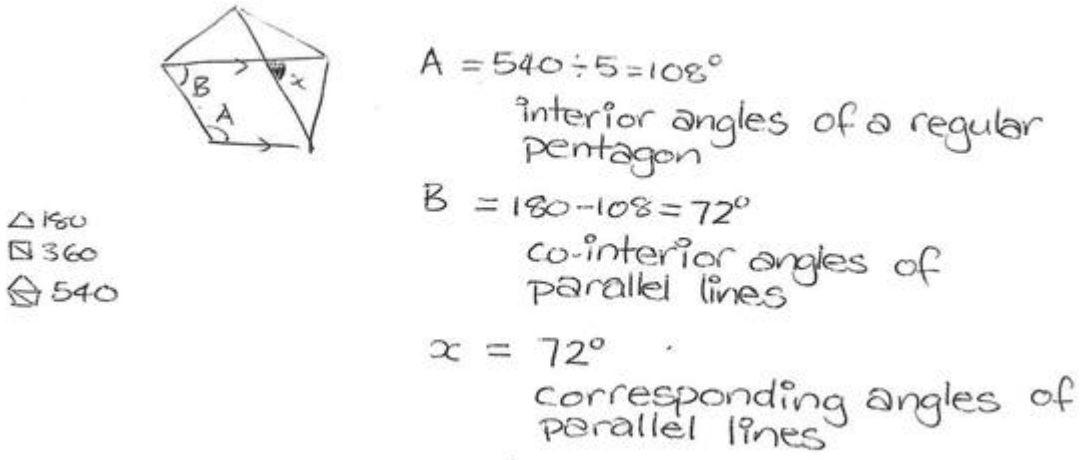
Problem: Finding Angles

The teacher poses this problem:

Find the shaded angle in the diagram below. Give geometric reasons for each step in you take.



Student Response



Teacher: I'm interested in the working you've jotted to the side with the little sketches of shapes, Briar. What were you thinking about there?

Briar: I needed to get started with an internal angle and being a regular polygon I know the way to do this is to break the shape up into triangles. A pentagon fits three triangles, so the internal angles add up to three lots of 180. Then I divided by 5 to get one of the angles.

Teacher: I can see that you've labelled this angle A.

Briar: Yes, I wanted to keep track of each step I took so I labelled the angles I was using.

Teacher: So what did you do to get the next angle?

Briar: I thought about using quadrilateral rules, but then when I looked harder at it I saw the parallel lines and found one that was co-interior. I could have used a different angle, but I would have still got to the same answer in the end so it didn't matter which one I chose.

Teacher: Which angle did this give you?

Briar: Angle B

Teacher: So what did you do next?

Briar: I know that angle B and the shaded angle were corresponding angles of parallel lines, so that means that the shaded angle is the same as angle B, so it is 72 degrees.