

## Tuesday Group Work

### Part C:

CATHY HUMPHREYS: Are you having trouble like coordinating yourselves as a group? You are all pretty quiet over here.

STUDENT: That's what I'm seeing.

CATHY HUMPHREYS: That's what you're seeing? Okay, so how could you, what could you do? Let me see – where are you, where are you right now?

STUDENT: Figuring out how to make an isosceles...

CATHY HUMPHREYS: Let me hear from somebody else Aaron. So Carmel, where do you think we are?

STUDENT: We were trying to make all the shapes and then we realized that we couldn't make the trapezoid.

CATHY HUMPHREYS: You cannot make a trapezoid yet? Okay, but you can make the others?

STUDENT: Yeah.

CATHY HUMPHREYS: Are you positive that you have directions for the manufacturer for each of the others that will always work? And there is no other...not only will they always work but there is no other way to make that shape besides what you've given? Are you sure about that? So I want to keep you in mind here, you might be, because eventually...because you always want to...you are convincing yourself that you got this and you are all sort of mathematical friends because you are seeing things the same way, but try to be skeptical. Somebody in the group needs to play the role of well, what about this and what about that, so that you make yourself...because it sounds like there is not enough disagreement; and a disagreement is what your group needs to be a really good group.

STUDENT: Why are these holes not lined up?

CATHY HUMPHREYS: That...they aren't?

STUDENT: Like I have the middle ones lined up and the end two are but...

CATHY HUMPHREYS: Well, that might be sort of like a manufacturing error.

STUDENT: Because I noticed when I line these two up, only the two holes...

CATHY HUMPHREYS: Alright, so is someone willing to take kind of a leadership role? Are you the facilitator Aaron?

STUDENT: No, she is.

CATHY HUMPHREYS: Carmel, so what I'm going to remind you is you are supposed to coordinate your group and you need to make sure everyone has something important to do. So why don't you take a status check right now; see what everybody is working on and make a plan together. Alright? Okay.

STUDENT: I just finished making this shape with the big one.

STUDENT: Like I said we need to figure out why it works.

STUDENT: Well, I have something. It is because if you keep it all the same distance from the end then it's going to be one pair of parallel lines and if you keep both of them in the center then there is going to be two pairs of parallel lines. I don't know if it works with this one though if they are the same lengths. So let me show you. Okay, so here, if you keep them both one point away from the end then this line is parallel to this line, no matter if you go like this or like this weird scissor shape; same thing with this one. Still parallel, still parallel these two.

STUDENT: So long as you keep the same number of points then the two lines are always going to be parallel?

STUDENT: And if you keep them both centered then you have two parallel lines. It's like whether you go like this because these two are parallel and these two are parallel. Um, it works the first way if you keep them both one point away, one point away. And then I think these two are parallel. I have to check, I don't know how. And these two I think are parallel and these two. Wait, which one am I talking about right now? I confused myself. These two are parallel and these two are not. So...and then if you center it, it's not going to work. It will work with one but actually it might work with the other two.

STUDENT: So...

STUDENT: It's a rhombus.

STUDENT: Yeah. Okay, so if we keep them centered...

STUDENT: Does a rhombus have two pairs of parallel lines?

STUDENT: Yeah, so if we keep them centered then you get two pairs and if you keep them the same distance, it's going to be one pair.

STUDENT: Why aren't they marked off? Okay, so we now know if it is centered then we have two pairs and...

STUDENT: And if you have equal distance from the end then it has one pair parallel.

STUDENT: So then what if it's centered and we turn it?

STUDENT: It stays the same; they are both still parallel no matter which way you turn it.

STUDENT: Well this...

STUDENT: Oh, that one stays the same, this one doesn't. This one is weird so you have to keep it at ninety degrees on this one.

STUDENT: So those are only parallel if it's ninety degrees.

STUDENT: And then if you turn it a bit then it just goes back to...no, I am confusing myself.

STUDENT: She is confusing herself.

STUDENT: No, it's the same thing here. It just looks weird but it's still the same.

STUDENT: And if we move it, what happens?

STUDENT: It stays the same, parallel unless you make it not equal distance, that's all.