# A Conversation Concerning Online Tutoring

This piece features a discussion between Jonny Griffiths and his alter ego, Max Hikorski. They are both mathematics teachers.

**M**ax: Hi, Jonny, how's it hanging?

Jonny: Fine, Max, in fact better than fine, let me tell you about my new activity, online maths tutoring.

Max; Tutoring over the internet? That's been going for a while, surely? I remember seeing an *Elluminate* session some years ago.

Jonny: It's new to me, and I'm smitten, Max.

Max: Why is it different to the usual?

Jonny: With face to face tutoring, either I go to them, which involves travel time and hassle, or they come to me, which gives them and their parents the identical problem.

Max: An obvious plus. But I sense there's something more fundamental that you like.

Jonny: Online, we're both in our own homes. I like teaching and learning while being surrounded by all the detritus that makes up my life. I can take sips from tea that is in my own mug. It's more relaxed, less polite, more profound. If I want to refer to one of my books, it's just there.

Max: And you can tutor from a train?

Jonny: if I'm on holiday, but I've promised a tutee a session, no problem; I can link up from the other side of the world.

Max: I can see that the physical distance would change the dynamic.

Jonny: I would say that helps the tutoring.

Max: So what do you use tech-wise?

Jonny: At the moment, I'm managing fine with just Skype. Your student calls you, then you click on the big + button next to the phone icon to share your screen. Then you open *Paint*, use a graphics tablet for writing on, and off you go. How many hours have I spent on *Paint* down the years? It's one of my favourite programs, and being able to use it here is a joy. Exam questions are easily pasted in. A hint: use the brushes for writing, it comes out better.

Max: Any downside?

Jonny: Ah, the tutee can't write on my Paint screen. But there are a bewildering array of companies offering shared whiteboard facilities. *Scribblar* has a deal whereby you can use *Latex* to build beautiful typed maths on your screen, alongside immediate access to *Wolfram Alpha* if you have a mid-session question to resolve. But *Scribblar* does not offer screen-sharing, beyond the fact that you can both write on the same screen. There are other companies that do though.

Max: So what's good about teaching maths in particular this way?

Jonny: Maths teaching these days uses lots of digital wizardry, and tutoring online, this is sweetly built in to your teaching. If I want to switch away from *Paint* to *Geogebra* or *Autograph* or a website, there's no problem. The integration is seamless. You can, of course, do this if you are sitting side by side, but given with online tutoring you have no alternative to looking at a screen, it feels completely natural.

Max: What if the technology goes wrong?

Jonny: Ah, there can be blips, and these are more than tiresome, but with experience, they become fewer in number. If the lesson bombs technologically, at least we don't have the long journey home.

Max: I'm not really picking up, Jonny, how the interaction changes with all this. Could you give me a sample conversation?

Jonny: Sure. Let me tell about Tom. He's a teenager who's working towards his A levels this summer. We've been doing four hours of tuition a week together, so we know each other pretty well now. This is what happened last week:
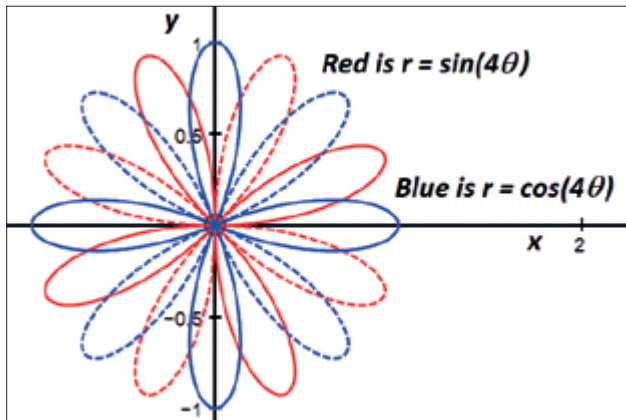
*Me: Are you okay, Tom?*

*Tom: Aargh, I've picked up a cold from somewhere.*

*Me: Then I'm glad you're two hundred miles away. But you have my sympathy.*

*Tom: (Interested) What's that?*

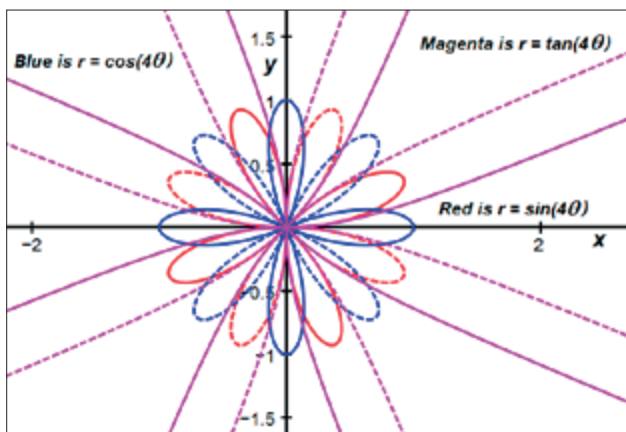*I realise I've just shared screens without thinking what was on mine first.*

*Me: Oh, I've been plotting the graphs of r = cos(nθ) and r = sin(nθ) for various n. This is what happens when you vary n….*

*Tom: I like it. Have you tried tan?*

*Me: Good idea – can you predict what will happen?*

*Tom: Well… tan can be infinite.*

*We try, and get spikes heading off to infinity.*



*Tom: Cool. But what kind of an equation is that -  r = cos(nθ)?*

*Jonny: It's in what are called polar coordinates. If you wanted, Tom, to tell me which point P in the plane you were thinking of, you'd probably set up x and y axes, and give me a pair of x-y coordinates. An alternative is draw the line OP, and tell me its length, r, and the angle it makes with the x-axis, θ. Some curves come out more simply in polar coordinates.*

*Tom: Like what?*

*Jonny: What would the equation of a circle centre the origin radius 3 be in polars?*

*Tom: (Pause) I guess r would be constant.*

*Me: That's it, so r = 3 would be its equation.*

*We turn to looking at vectors. I want to draw*

*something in 3D, and offer a Tom a choice of white, blue or black background.*

*Tom: I'll go for black – it matches the colour of my soul right now…*

*I look carefully at Tom in the small shared Skype rectangle, and wonder if he's obliquely asking for a minute or two of counselling. Students under exam stress can suffer greatly; I've seen Tom in tears. But today, he smiles.*

*Tom: Only kidding. Black looks best.*

*We get the lines drawn, and drag the picture from side to side, discussing how two lines in 3D might relate to each other.*

*Me: Maybe, Tom, I can sum up by performing my Vector Haka: two lines can coincide (arms on top of each other), they can be parallel (arms parallel) they can be skew (one arm in front of the other) or they can meet (arms touch).*

*This is tricky for me in Skype, but Tom laughs. He gets the message.*

*Me: So Tom, are these two lines going to meet or not?*

*Tom: Well, if they said hello on the internet and agreed to meet from there, probably not.*

*Me: Red herring alert, Tom.*

*Tom: Sorry, Jonny…*

Max: Yes, I like the conversation. Tom sounds – free to be himself. Which is a good thing.

Jonny: I think there's a lot of this interchange that wouldn't happen if we were sitting side by side.

Max; It sounds as if he feels safe. Should we mention safeguarding?

Jonny: We should, and surely online tutoring is inherently a safer way to operate. The protection works both ways; the student needs safety from an immoral teacher, while the teacher does not want to be pestered or stalked or falsely accused either. If you go through an agency to find your tutees, you may well be asked to contact the parent or student only via the agency website, which is an additional layer of protection, although swapping Skype and email addresses does enable essential communication in case of disaster.

Max: Are there any more plusses for the student?

Jonny: It's not happened to me, but students can just pull the plug and walk away from the lesson. They thus have more power than in the traditional

set-up, which is probably a good thing.

Max: Any trouble recruiting tutees?

Jonny: There is a growing number of agencies offering work. I heard recently that more than half the students in London now have a tutor.

Max: Can I raise an awkward question: what about the politics of all this? Is it not true that only the rich can afford tutoring?

Jonny: Good point, Max, and maybe it's only the richer maths teacher who can afford to raise that issue! I've only dipped my toe in the water; my tutoring might go in lots of directions. I could get creative with my pricing policy. Some companies offer the chance to host larger meetings: it's perfectly possible to teach a whole class online, with everyone being able to contribute. I could charge less per tutee here. And now, with schools battling to recruit maths teachers, I could find myself being beamed into a college classroom before very long.

**Jonny Griffiths is a mathematics teacher, a writer and a musician and can be contacted at <u>hello@jonny-griffiths.net</u>**