Heading for Trouble?

Topics: Algebra & Functions This problem will have students explore the intersection of linear and quadratic functions.

Year Group: 5th Year Level: Leaving Certificate Ordinary

Posing the Problem

A plane is flying along the line 3x - y = 18. The edge of restricted air space is defined by $y = x^2 - 8x + 12$. For safety reasons the pilot should not enter restricted air space. If the plane continues along this line, would you advise the pilot to change direction? Find as many ways as you can to answer this question.



Presenting Students' Work



Reflecting on the Lesson

Many of the students wanted to be told what method to use. At the beginning they were slow to start because they were used to being told what to do rather than create a solution themselves. Two of the students opted immediately for substitution but were unsure about linking their answers to the word problem. Later during the discussion it occurred to them when hey were asked why. Students used the Casio calculator to generate the values of the quadratic and the line very quickly drew a graph and could link it to the question they were being asked. Some students had poor scales on their graphs which led to them assuming that the line intersected the curve at only one point. The students were exposed to the idea that a problem can have more than one solution and to a real-life application of algebra. They did engage in mathematical discussions and explain ideas to each other and learn from each other. In their review afterwards they said that they found it more interesting and challenging than usual even though it was initially confusing.

St. Ai Whit Scoil Act

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Maths Counts 2017 Engaging teachers in Lesson Study

Foireann Forbartha Mata Maths Development Team



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