***Shipping Routes***

By Dan Meyer

<http://www.101qs.com/2468-shipping-routes>

**Instructor Notes**

By Trey Cox

**What is a Three Act Task?**

* If you are unfamiliar with Dan Meyer’s Three Act Tasks or would like to watch a good overview of how they can be effectively implemented in your classroom, be sure to watch this Youtube video: [Three Act Tasks](https://www.youtube.com/watch?v=8OHvrNAfURw) .
* A very good blog produced by Dan Meyer includes valuable information. On the blog he explains his philosophy of the Three Act Task as well as answers questions from classroom teachers can be found at: [dy/dan](http://blog.mrmeyer.com/2013/teaching-with-three-act-tasks-act-one/).
* You can find an Excel spreadsheet of Three Act Tasks created or inspired by Dan Meyer can be found [here](http://www.livebinders.com/play/play_or_edit?id=330579) . It includes over 70 lessons you can access from the spreadsheet. Most of the tasks do not include fully fleshed out lessons. That is the goal of the Teacher Notes and Student Handouts that I have created and posted on the AMP Network for your use.

**Overview of Lesson:**

The questions are simple: As two ships leave port at the same time but at different speeds, we wonder if they will ever meet again? And if so, how long will that take? The lesson hooks students immediately with the initial video clip of two simulated ships leaving port and separating from one another as they travel at slower rates.

This lesson includes the following documents (find on the AMP Network or on the Dan Meyer website):

* act 1 video
* act 3 – video answer
* Student Activity
* Instructor Notes

**Common Core Standard(s) Addressed:**

[CCSS.MATH.CONTENT.6.NS.B.4](http://www.corestandards.org/Math/Content/6/NS/B/4/)

Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

**Student Activity Guide**

By Trey Cox

\*\*Watch Dan Meyer Video Clip: Shipping Routes – act1.mov\*\*

Act I –

1. Will the two ships ever meet again at the starting port?
   1. If you think they'll meet again, what's an amount of time you know is too high?

*Try to encourage the students to not wildly guess like 5 days but a reasonable and yet too low of an estimate.*

* 1. If you think they'll meet again, what's an amount of time you know is too low?

*Try to encourage the students to not wildly guess like 3 seconds but a reasonable and yet too high of an estimate.*

Act II –

1. Go to this link: <http://mrmeyer.com/shippingroutes/>. Try different combinations of shipping times. Write down the time it takes the ships to meet back up. Do you notice any patterns?

*Answers vary. Here are a few examples:*

*2 min vs 6 min it takes 6 minutes*

*4 min vs 6 min it takes 12 minutes*

*2.5 min vs 7.5 min it takes 7.5 minutes*

*20 min vs 50 min it takes 100 minutes*

*So the answer is the Least Common Multiple of 25 min and 30 minutes is 150 minutes*

Act III – Play VIDEO - Answer - act3.mov

SEQUEL –

QUESTION - Could you create two boat times so that the boats would never return to shore at the same time? Prove it.

*No, any two numbers you that are chosen will have a least common multiple. For example, for even decimals such as 2.1 and 41 the LCM is 861.*

QUESTION - What if you had three boats? Four?

*You would need to find the LCM of the three or four numbers to find the time they will meet up again at the harbor.*