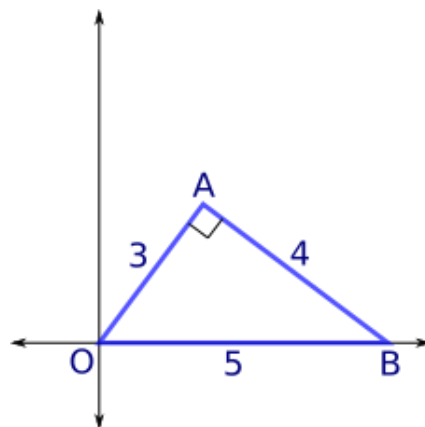


IM2 Problem Set 5.10 - Linear Functions

BIG PICTURE
of this UNIT:

- What is meant by the term FUNCTIONS and how do we work with them?
- mastery with working with basics & applications of linear functions
- mastery with working with basics & applications of linear systems
- understanding basics of function concepts and apply them to lines & linear systems

1. Bob bumps his head and he starts to plot all his points in reverse order. For example, when he tries to plot the point $(3, 2)$ he plots $(2, 3)$ instead. A problem in the textbook tells him to graph $y = 3x + 2$.
 - a. Draw the line that he will produce as well as the correct line. What are the slopes of these 2 lines?
 - b. Find the equation of the line that he graphed (in error of course)
2. Save Cairo from an Alien Attack \Rightarrow
http://mrsantowski.tripod.com/2019IntegratedMath2/Labs/ALIENS_ATTACK_Handout.pdf
3. Two lines with a non-zero slope and the same y -intercept have the property that the sum of their slopes is 0. What is the sum of the x -coordinates of their x -intercepts?
4. In the diagram below, what is the slope of OA? What is the slope of AB?



5. What is the area of the triangle formed by the three lines whose equations are given below?
Line 1 $\Rightarrow y - x = 6$
Line 2 $\Rightarrow x - 2y = 3$
Line 3 $\Rightarrow x + y = 6$

6. Imagine your family agreed to give you some pocket money every day for a month! You can choose from the following options:

£10 every day

£3 on the first day, £3.50 on the second, £4 on the third, and so on, increasing by 50p per day
1p on the first day, 2p on the second, 4p on the third, and so on, doubling each day.

Without doing any working out, which one would you choose, and why?

In a month with 31 days, how much money would you have by the end of the month, under each system? You may wish to explore using a spreadsheet...

Here are some questions you might like to consider:

In which months would option 1 be better than option 2?

If your family stopped your pocket money on day 8, which option would give you the most?

On which day of the month does option 3 become the most fruitful?

If you chose option 3, how many days would it be before you became a millionaire?