IBMYP Standard Maths Sample Paper 1

Group 4: Mathematics
# On-Screen Examination

Total Marks: 100

Instructions

- The on-screen examination has not yet started.
- Your time will begin once you have clicked the Start button below. Do not click Start until instructed to do so.
- Before the examination begins you are given 5 minutes to become familiar with its structure. Please navigate around the examination, taking note of the length of each task and question. You have 2 hours to complete the examination.
- There are 10 separate questions in this examination. Each question may have sub-parts. Answer all the questions in the response boxes provided. The maximum mark for this examination is 100 marks.
- As you progress through the questions, your answers are automatically saved.
- When 2 hours has ended. you will no longer be able to answer any questions.

Question 1: 4 marks

1. **A set of equations has been given in the list below:**
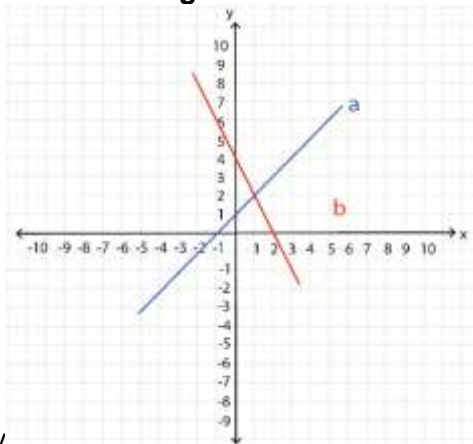
- $4 = 2x + y$
- $y = x + 1$
- $y = 3/2x + ½$
- $y = x + 4$
- $2y + 3x = 2$
- $y - 4x = 1$

a) From the list below, determine which equation suits line A and line B each (2 marks)

Answer:

A: $y = x + 1$: When you calculate the slope of that line, the gradient comes to +1 and the y intercept is also +1. Therefore, this is the only option satisfying both conditions.

B: $4 = 2x + y$: When you calculate the slope of Line B, the gradient comes to -2 and the y intercept comes to +4, Therefore, the equation will be $y = -2x + 4$. By rearranging this, it matches one of the options above: $4 = 2x + y$

b) Line D is perpendicular to Line D and the given line equation and Line D is parallel to it. Write down the equations for both line C and D. (2 marks)
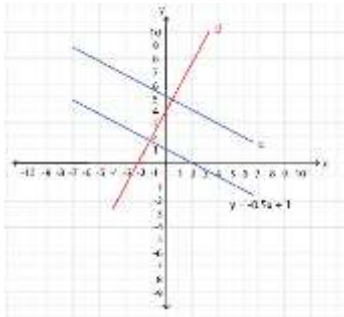
Answer:

Since Line C is parallel to the known equation, the slope remains the same. Only the y intercept changes, therefore, **the equation is $y = -0.5x + 5$.**

As for Line D, since it is perpendicular, the product of the slopes of the two lines Intersecting should be -1. Since we already have -0.5, the slope has to be 2 for it to result in a product of -1. In addition, the y intercept is 4, theref**ore,** **The final equation is:** $y = 2x + 4$

Question 2: 8 marks

2. a) Calculate the volume of the building below in cubic feet (3 marks)

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