

學校名稱：School Name:

第十四屆香港中學數學創意解難比賽

The 14th Hong Kong Mathematics Creative Problem Solving Competition for Secondary Schools

決賽

Final Event

請細心閱讀以下規則：

Please read the following rules carefully:

1. 答卷時間為 **70** 分鐘，你可在答卷時間開始後 **15** 分鐘及完結前 **15** 分鐘離開班房進行測量。若要進出班房，請向監考員表示。
The answer time is 70 minutes, and you can leave the classroom to take measurements 15 minutes after the start of the answer time and 15 minutes before the end. If you need to go in and out of the classroom, please inform the invigilator.
2. 所有隊員必須一起活動，並時刻都需保持在監考員視線範圍內。
All team members must move together and must remain within the sight of the invigilator at all times.
3. 同學只可乘坐電梯到建築物平台一層進行測量，不可靠近欄杆，免生危險。
Students can only take the elevator to the podium floor of the building to take measurements, and cannot go near the railings to avoid danger.
4. 同學可以使用電子儀器進行資料搜索及測量，但不能以電子儀器作溝通用途。
Students can use electronic devices to search for data and take measurements, but cannot use them for communication purposes.

運籌咫尺 妙算天涯 Local calculation, Global mensuration

解難任務 1：

教育局九龍塘服務中心的西翼大樓是一座梯形棱柱形狀的建築物。

請前往平台層。

測量並估計該建築物（平台層以上）的總體積。

Problem Solving Task 1:

The West Block of the Education Bureau Kowloon Tong Service Centre is a building in the shape of a trapezoidal prism.

Please go to the platform on the podium floor.

Measure and estimate the total volume of this building (above the platform on the podium floor)

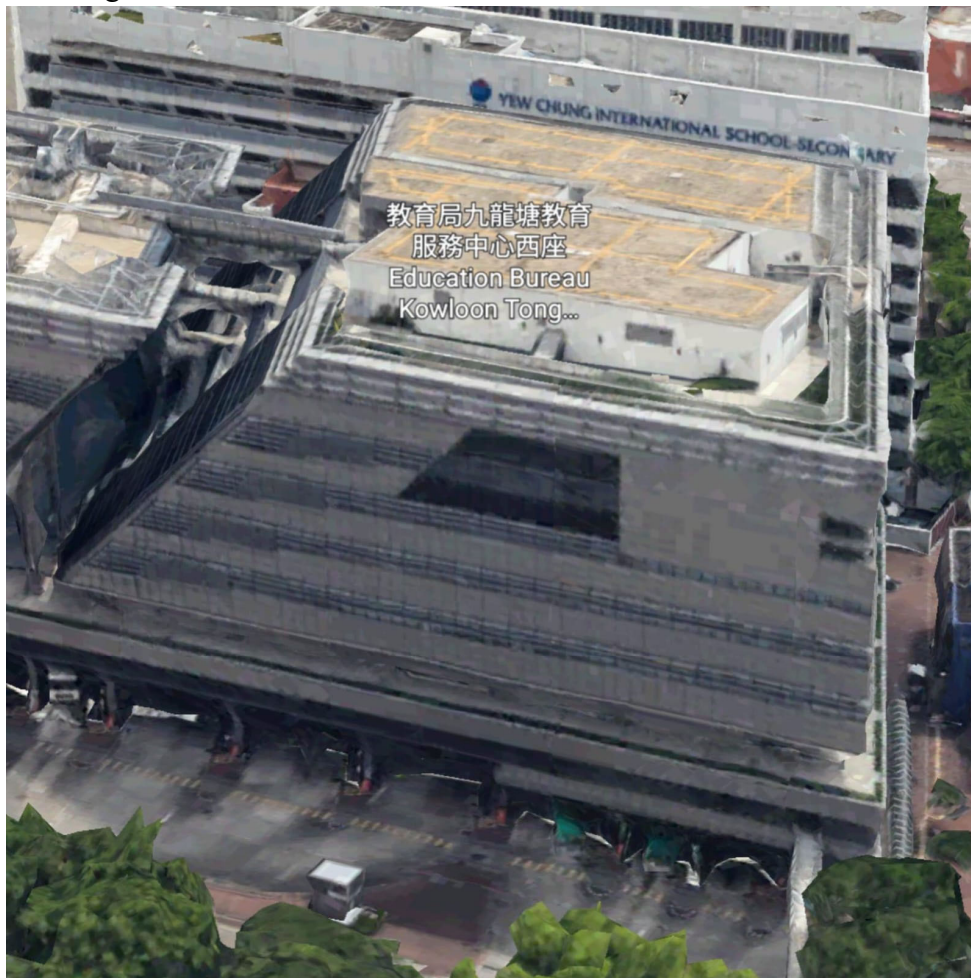
- 1(a) (i) 描述建築物頂部、底部及側面的形狀及尺寸。
Describe the shapes and dimensions of the top, the base and the lateral faces of the building.

(10 分 10 Marks)

	頂部 Top	底部 Base	側面 Lateral Faces
形狀 Shapes			
尺寸 Dimensions			

- (ii) 描述估算建築物總體積所需的數據。
並在下圖標示你的量度數據。
Describe what kind of data are needed to estimate the total volume of the building.
Mark the data you obtained on the corresponding places in the diagrams below.

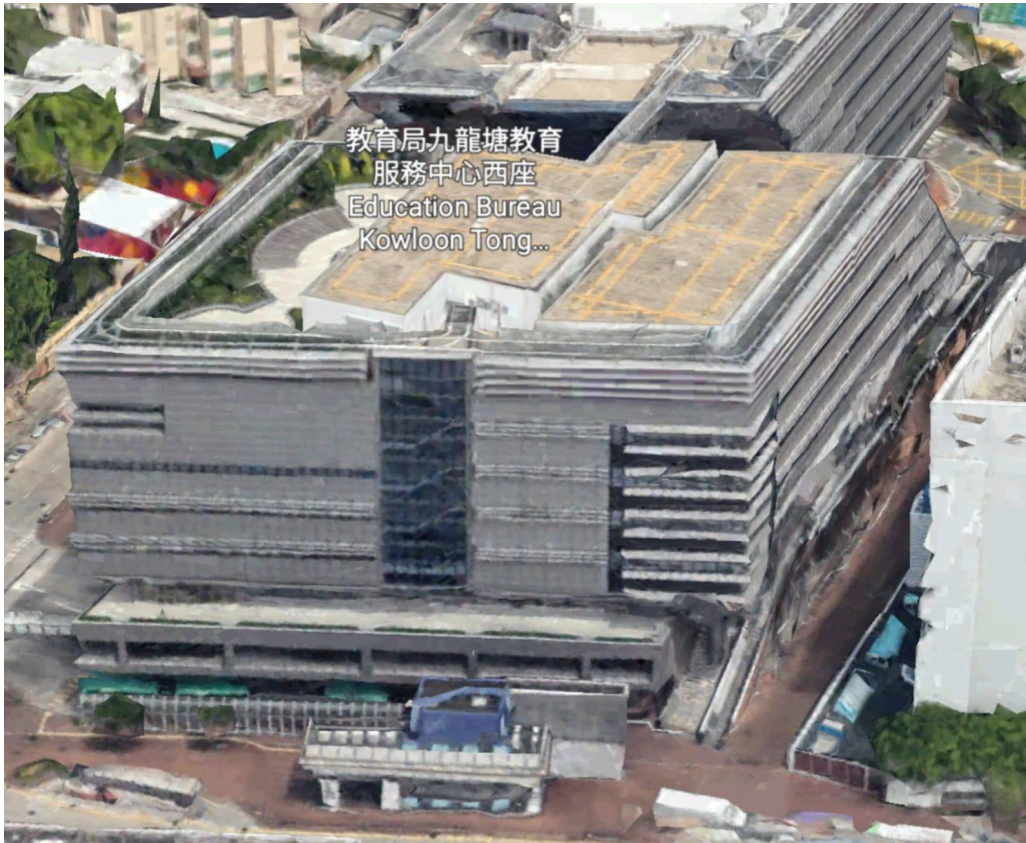
圖一 Diagram 1



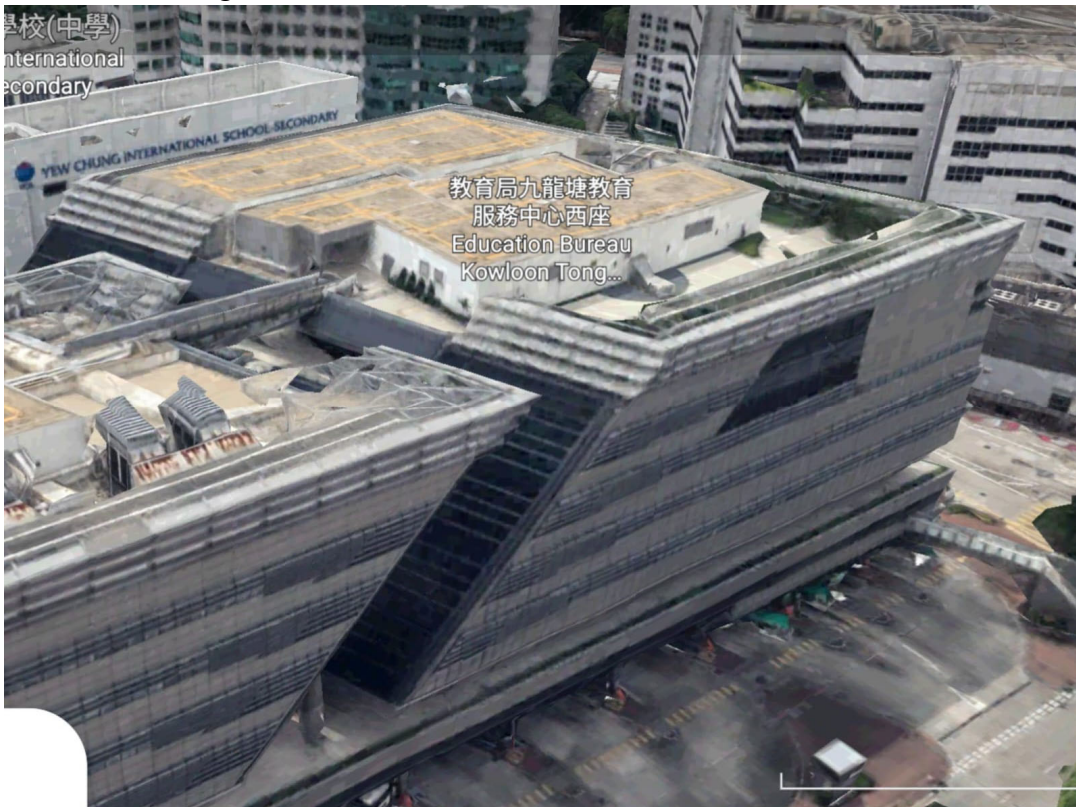
圖二 Diagram 2



圖三 Diagram 3



圖四 Diagram 4



(20 分 20 Marks)

1(b) 大會提供了材料來製作自己的測量工具。你製作了哪些工具，它們的功能和限制是什麼？如何克服這些限制？

You are provided materials to make your own measuring tools. What tools were made and what are their functions and limitations?

How to overcome such limitations?

(10 分 10 Marks)

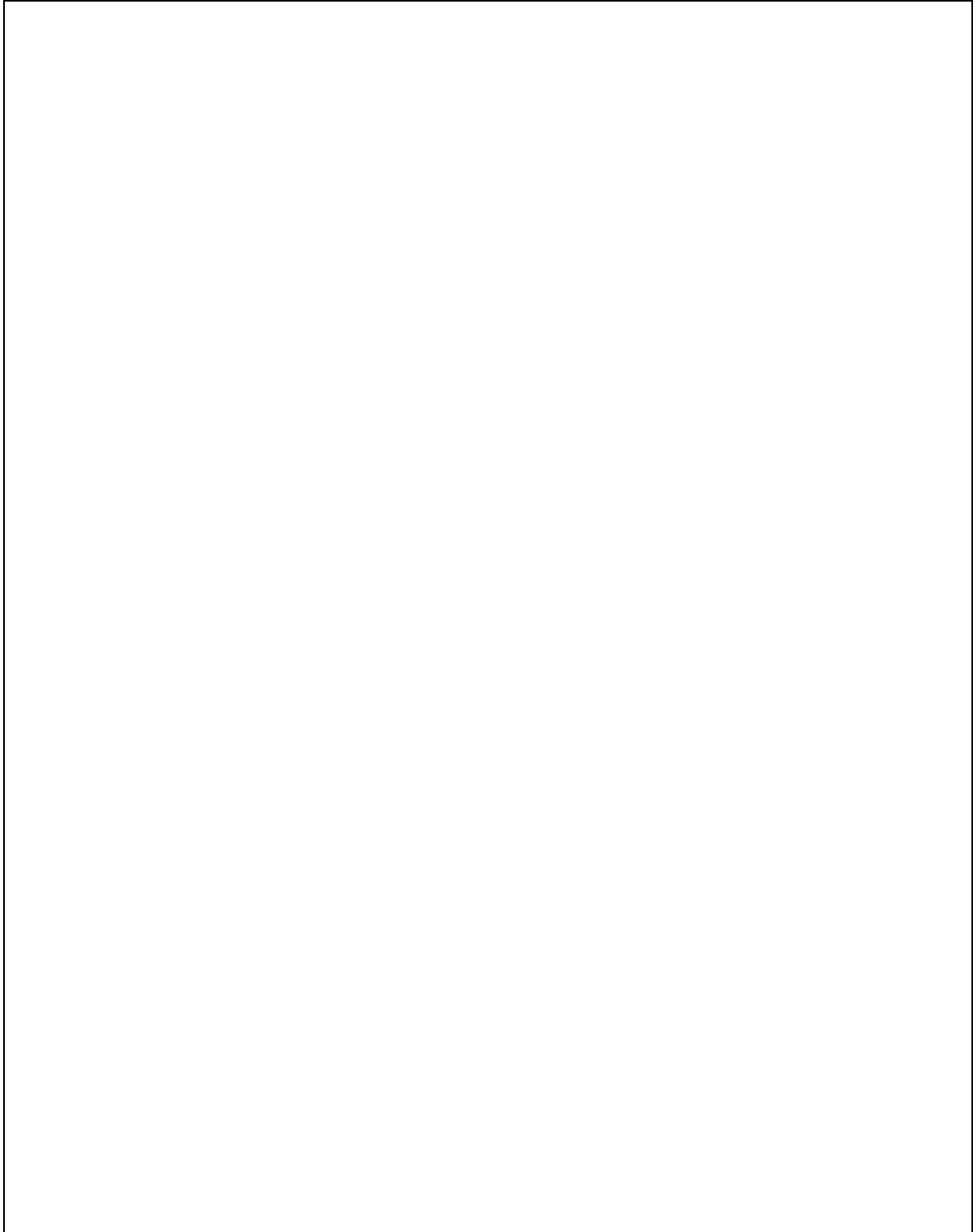
1(c) 建築物體積的估算是多少？在估算當中你做出了哪些假設？

試求出建築物估計體積的一組下限和上限。

What is the estimated volume of the building? What assumptions were made in your estimation?

Find a set of lower and upper boundaries for the estimated volume of the building.

(30 分 30 Marks)



解難任務 2：



教育局九龍塘服務中心西座建築物上有兩幅巨型玻璃幕牆。
請在地下平台的活動空間上對面向旗桿的一幅巨型玻璃幕牆的總面積作出測量估算。

Problem Solving Task 2:

The West Block of the Education Bureau Kowloon Tong Service Centre has two large glass curtain walls.

Please go to the podium on the ground floor to measure and estimate the total area of the large glass curtain walls facing the flagpoles.

- 2(a) 描述估算玻璃幕牆的面積所需的數據。
並在下圖標示你的量度數據。

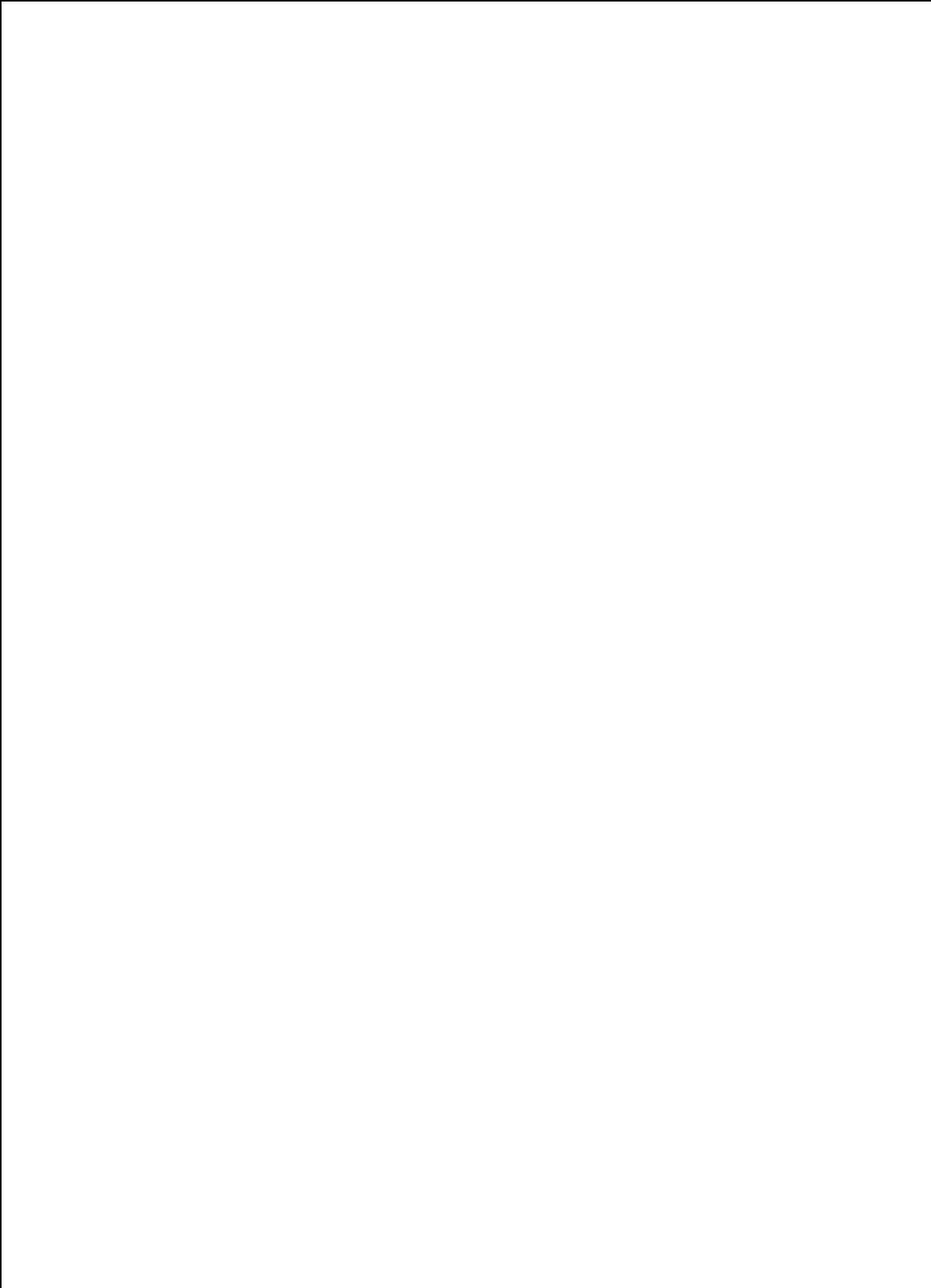
Describe what kind of data are needed to estimate the total area of the large glass curtain walls.

Mark the data you obtained on the corresponding places in the diagrams below.

(10 分 10 Marks)

圖五 Diagram 5



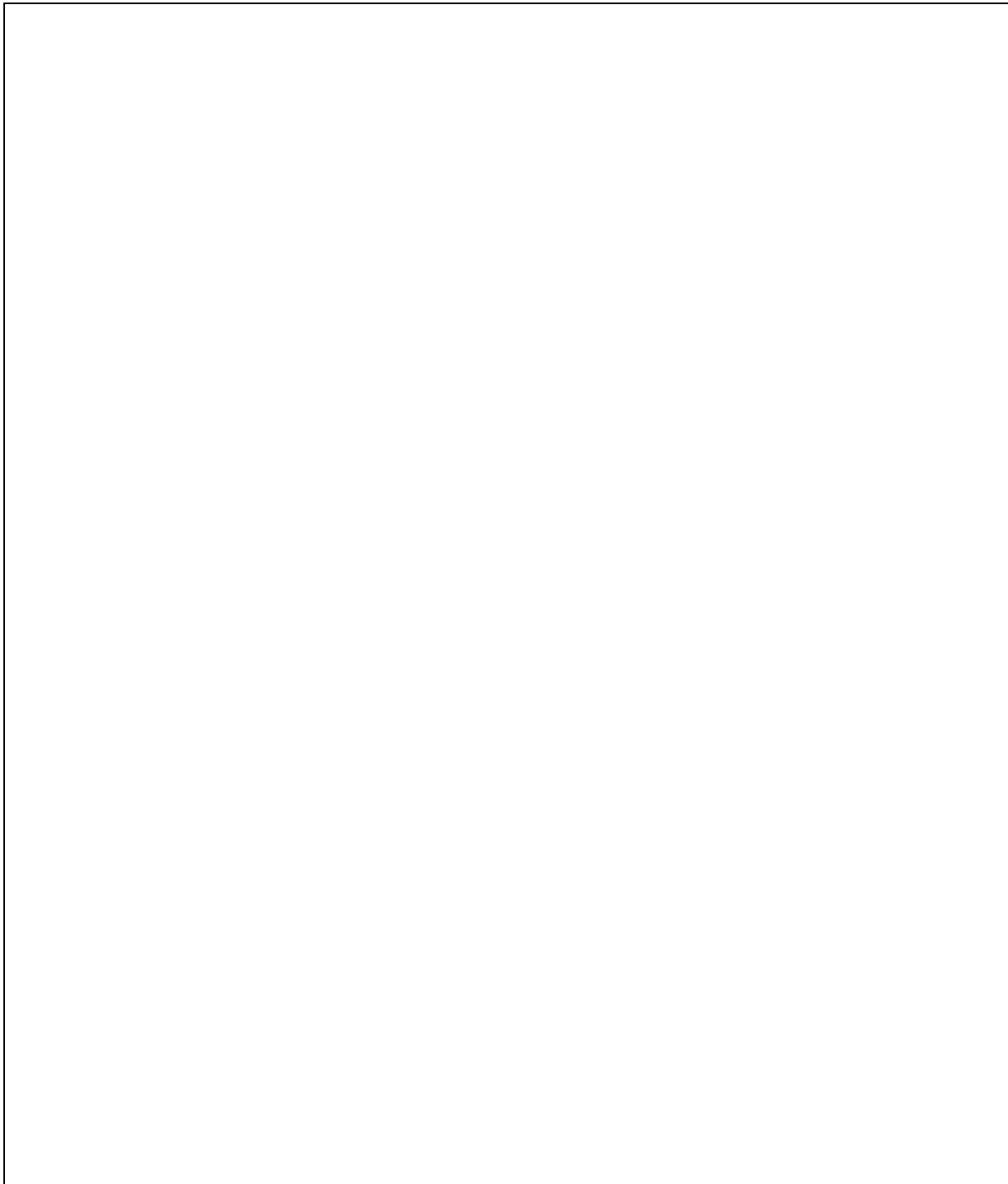


2(b) 玻璃幕牆的總面積的估算是多少？在估算當中你做出了哪些假設？
試求出玻璃幕牆總面積的一組下限和上限。

What is the total area of these two large glass curtain walls? What assumptions were made in your estimation?

Find a set of lower and upper boundaries for the total area of these two large glass curtain walls.

(20 分 20 Marks)



答卷完 End of Paper