



**Ministry of Education and Youth**

**Primary Exit Profile (PEP 6)**

**March 2023**

**Performance Task – Mathematics**

**Time: 1 hour 30 minutes**

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**DO NOT OPEN THIS BOOKLET UNTIL TOLD TO DO SO**

**GENERAL INSTRUCTIONS:**

**This task has three parts: Part 1, Part 2, and Part 3.**

**Part 1 has Questions 1, 2 and 3.**

**Part 2 has Questions 4A and 4B.**

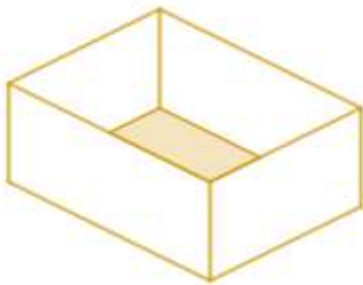
**Part 3 has Questions 5A, 5B and 5C.**

**Read the information in each part carefully. Use the information provided to answer ALL questions in each part.**

# Premium Packaging

Premium Packaging makes cardboard boxes of different sizes. Other companies buy these cardboard boxes from Premium Packaging to package their own products.

Premium Packaging sells two types of boxes:



- **Standard cardboard boxes** – These boxes are already made. The dimensions of these boxes cannot be changed.
- **Custom-made cardboard boxes** – These boxes are made based on dimensions given to the company by the customer.



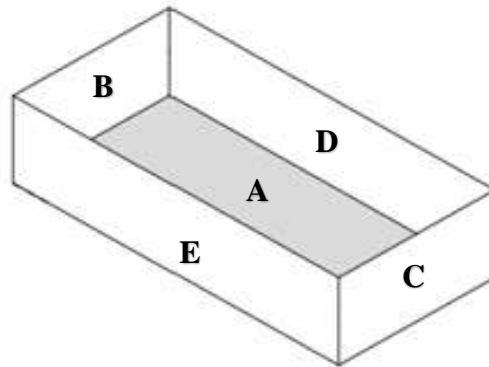
PlayGo is a company that makes and sells toy building blocks. They want to buy cardboard boxes from Premium Packaging, to package their building blocks. PlayGo wants to determine whether buying a standard cardboard box **OR** buying a custom-made cardboard box would be better.

**PlayGo needs your help to**

1. find the number of building blocks that can fit into a standard cardboard box,
2. determine the dimensions of a custom-made cardboard box, and
3. recommend which of the two boxes would be better to use to package the building blocks.

**Part 1: Standard Cardboard Box**

The **standard cardboard box** is shown below. The faces of the box are labeled A – E.

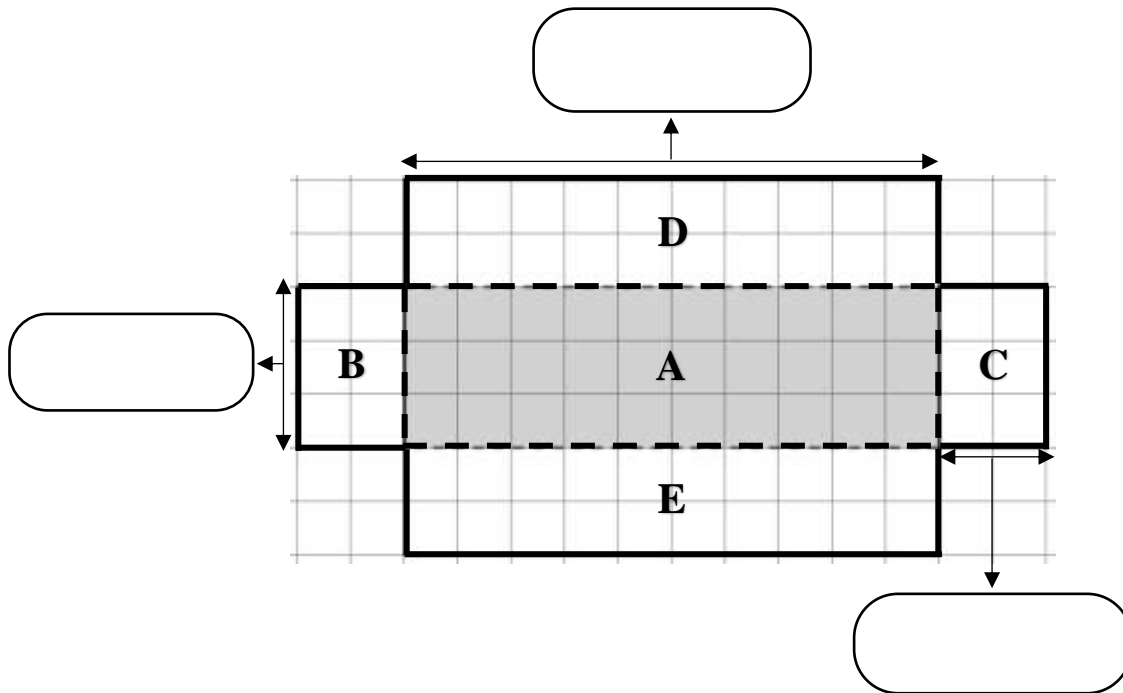


The **standard cardboard box** has the following dimensions:

Length = 10 units	Width = 3 units	Height = 2 units
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**Question 1**

The **NET** of the **standard cardboard box** is shown below. Use the dimensions given to correctly label the sides of the net. Write the correct measurement in the spaces provided.



*Please note: The dotted lines ( - - - - ) in the diagram of the net show where the cardboard is folded.*

## Question 2

The **Total Area** is the amount of cardboard needed to make the box.

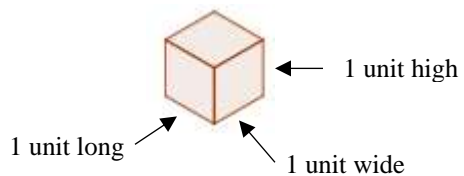
Table 1 shows the length, width and area of each face of the standard cardboard box. Complete the table by writing in the missing length, width and/or area of each face of the standard cardboard box.

Use the net in Question 1 to help you.

**Table 1: Dimensions of the Faces of the Standard Cardboard Box**

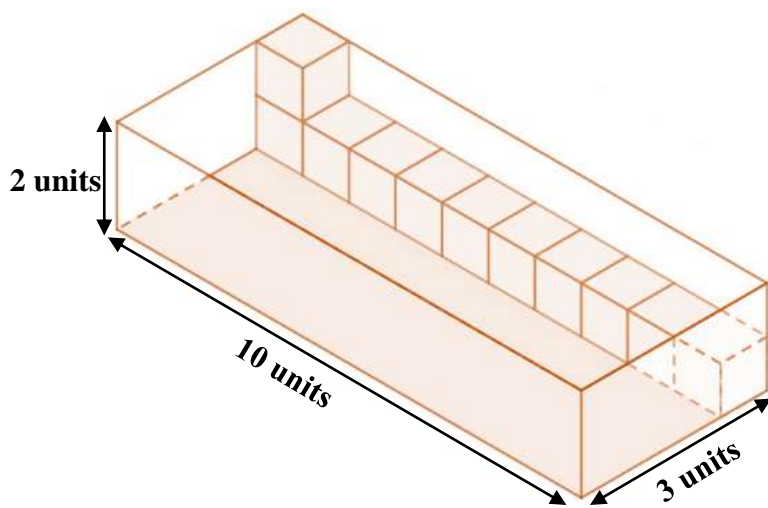
Face	Length of Face (units)	Width of Face (units)	Area of Face (units <sup>2</sup> )
A	10	3	30
B	3		
C			6
D		2	
E			
<b>Total Area</b> (Amount of cardboard needed to make the box)			<b>82 units<sup>2</sup></b>

A toy building block is 1 unit long, 1 unit wide and 1 unit high.



**Question 3**

How many of these blocks can fit in the standard cardboard box?



Put your response in the space provided below.

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## Part 2: Custom-Made Cardboard Box

**PlayGo** is thinking about ordering a custom-made box.

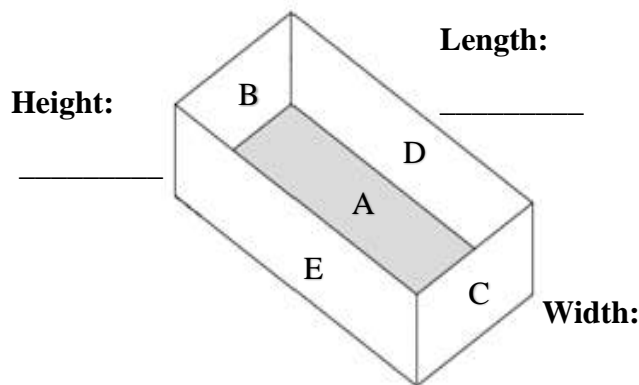
The total area of the net is used to calculate the amount of cardboard needed to make the box.

**PlayGo** has asked Premium Packaging to design a custom-made box that meets the following requirements:

- Its dimensions must be **different from** the dimensions of the standard box.
- It must hold the **same number** of toy building blocks as the standard box.
- Its width must be **more than** 2 units
- Its height must be **2 or 3** units

### Question 4

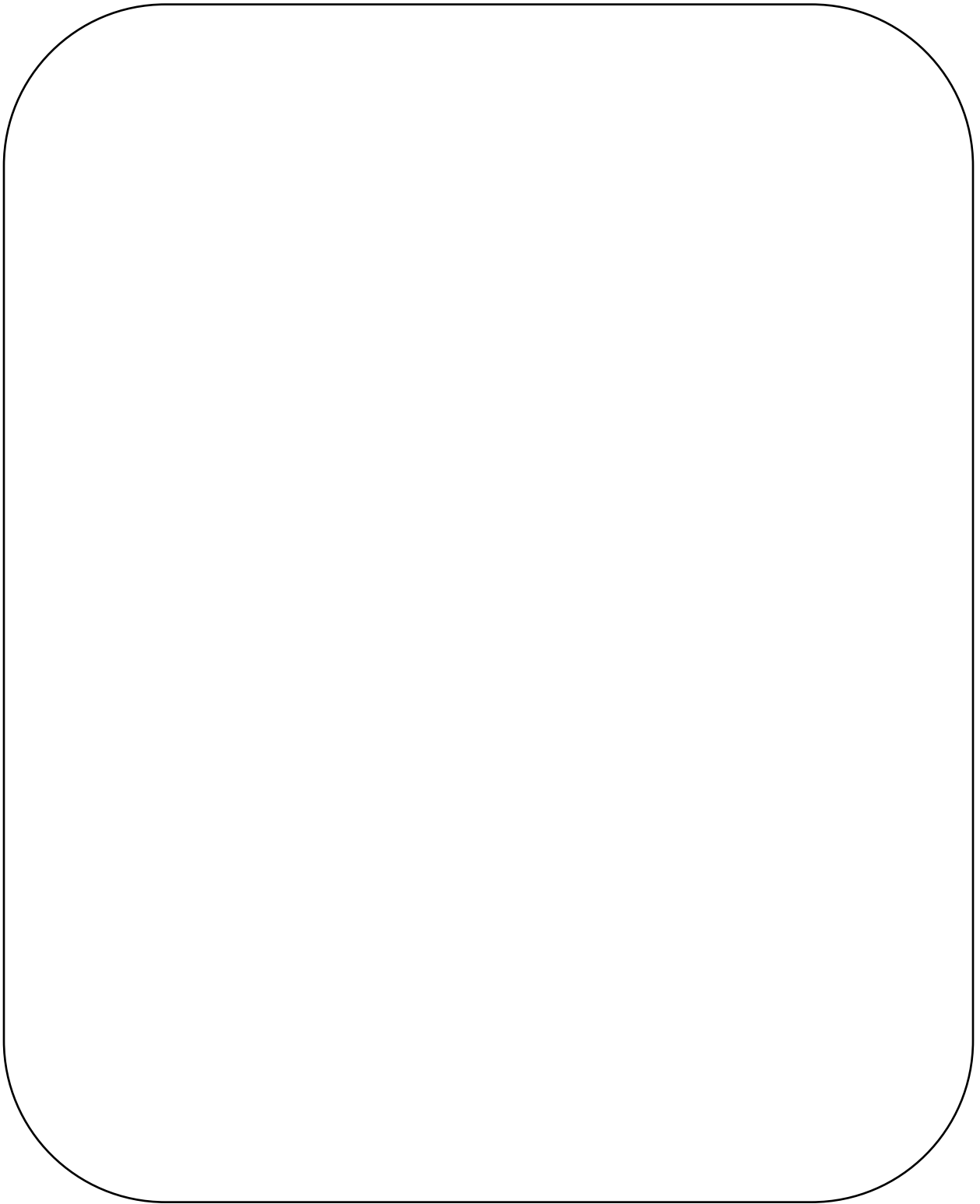
- A. Based on the requirements above, what are the dimensions of the custom-made box that you suggest Premium Packaging make for **PlayGo**? Write the dimensions on the lines provided.



**Try your numbers here:**



- B.** How much cardboard is needed to make the custom-made cardboard box?  
**Show your work in the space provided below.**

A large, empty rounded rectangular box with a black border, intended for the student to show their work on the problem.

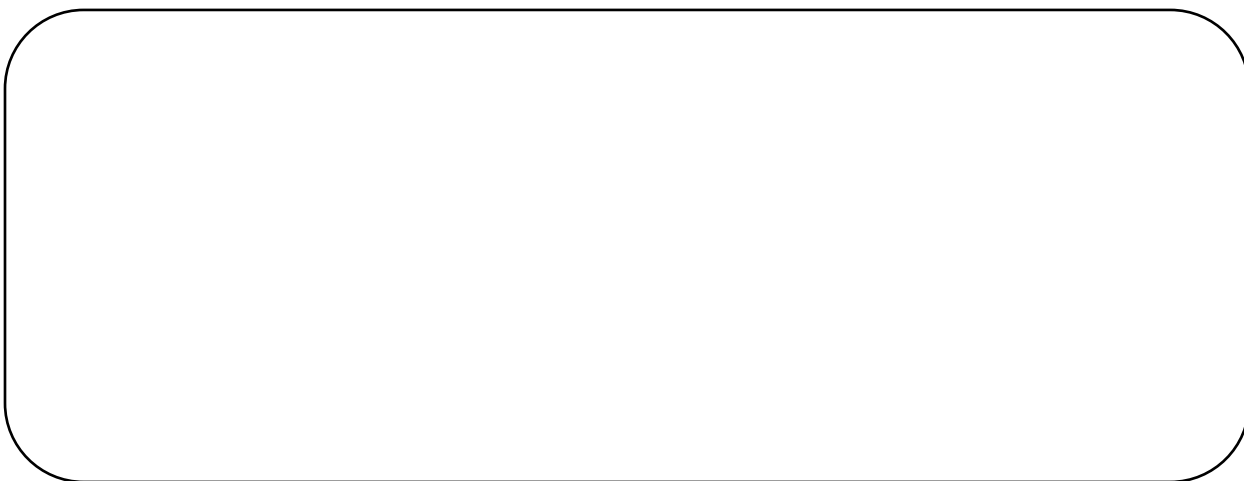
### Part 3: Recommendation

Premium Packaging sells both the standard cardboard boxes and the custom-made cardboard boxes based on the amount of cardboard used to make the box.  
The cardboard is sold for **\$5** per square unit ( $\text{unit}^2$ ).

#### Question 5

- A. What is the cost to make the standard cardboard box and the custom-made cardboard box?  
**Show your work in the spaces provided below.**

##### Standard Cardboard Box



##### Custom-Made Cardboard Box





**B. Based on all your calculations, which of the two boxes would you recommend that use to package their toy building blocks?**

*Tick the box beside the answer you have chosen.*

- Standard Cardboard Box
- Custom-Made Cardboard Box

**C. Give an explanation for the type of box you selected in your answer to Question 5B. Write your answer in the space provided.**