

2015_Grade_6_Mathematics_Set_A

Copyright© National Institute for Educational Policy Reserch
All Right Reserved URL:
<https://www.nier.go.jp/English/index.html>

The English translation is prepared by the Project IMPULS at
Tokyo Gakugei University, Tokyo, Japan. (<http://www.impuls-tgu.org/>)

This translation is intended to be used for research and
education purposes only. No part of this document may be
reproduced for commercial purposes without the written
consent of the copyright holder.

2015 Problem Set A

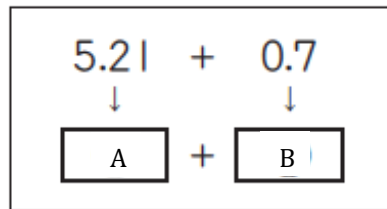
[1] Answer the following questions.

(1) Select the good approximate answer for $8.9 - 0.78$ from **1** through **4** below and write the number.

- 1** 0.1
- 2** 1
- 3** 0.8
- 4** 8

(2) We are going to express $5.21 + 0.7$ as an expression based on 0.01 as the unit.

How many units of 0.01 together will make 5.21 and 0.7 respectively? Write the appropriate numbers in (A) and (B) below.



(3) We found 6.52 as the answer for $6.3 + 0.22$. We are going to check if this answer is correct as follows. Write the appropriate numbers in (C), (D) and (E) below.

Calculate - and check if we get .

[2] Calculate the following.

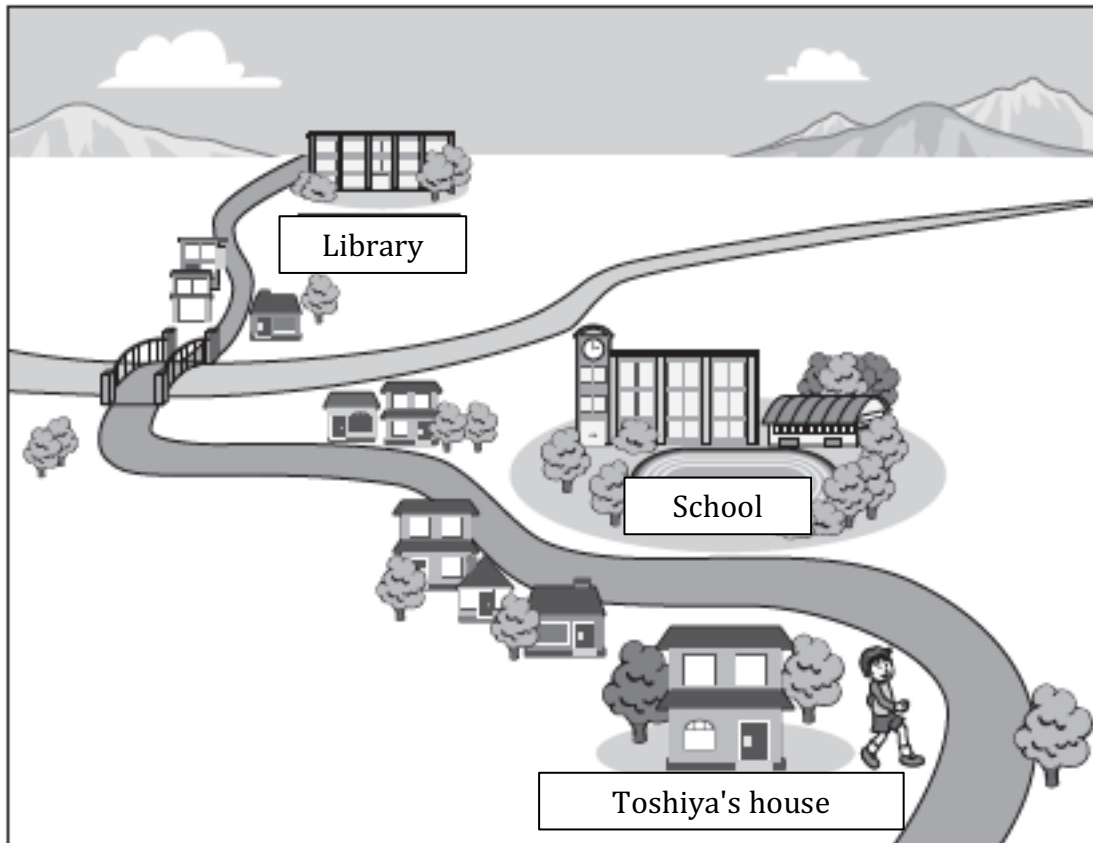
(1) $28 + 72$

(2) $6.79 - 0.8$

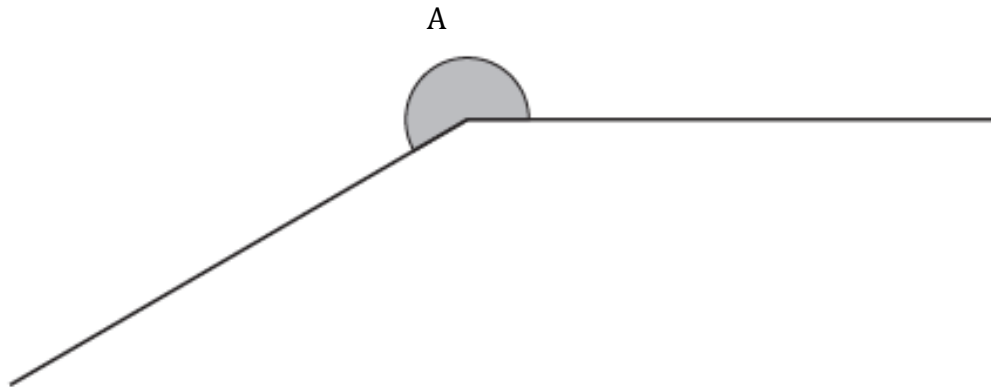
(3) $\frac{5}{9} - \frac{1}{4}$

(4) $\frac{5}{6} \div 7$

- [3] Toshiya is going to the library from his house, passing in front of the school. It takes 5 minutes to go from his house to the school, and it takes 20 minutes to go from the school to the library. In order to arrive at the library by 3:10 pm, by what is the latest time he can leave his house? Write that time.



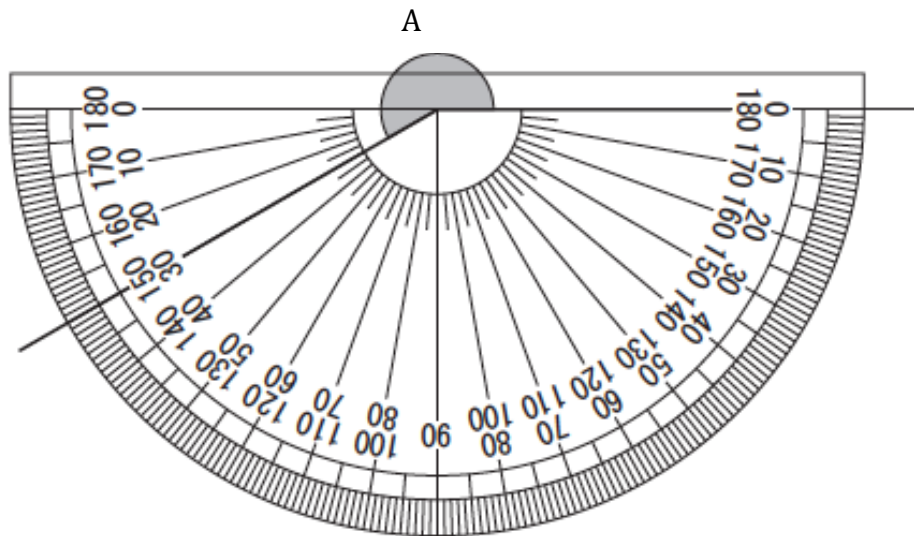
[4] We are going to measure angle A shown.



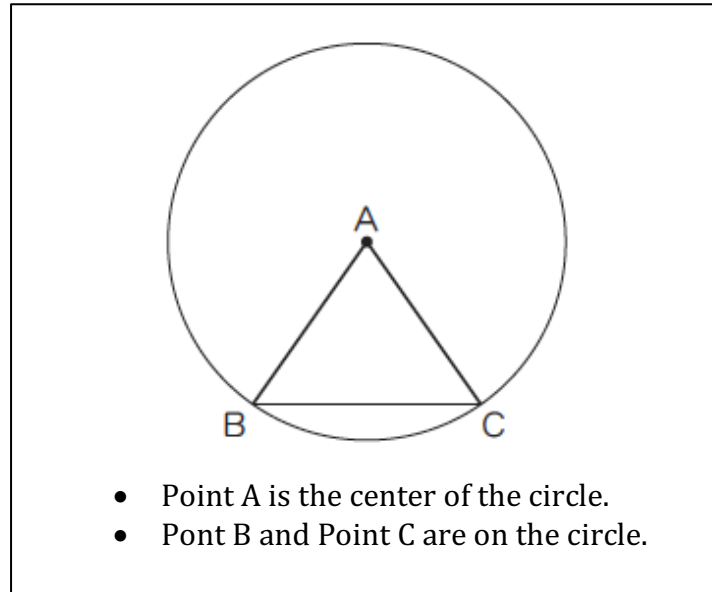
(1) Select one correct statement about the size of angle A from **1** through **4** below and write the number.

- 1** It is less than 90° .
- 2** It is greater than or equal to 90° but less than 180° .
- 3** It is greater than or equal to 180° but less than 270° .
- 4** It is greater than or equal to 270° but less than 360° .

(2) How many degrees is angle A? Write your answer.



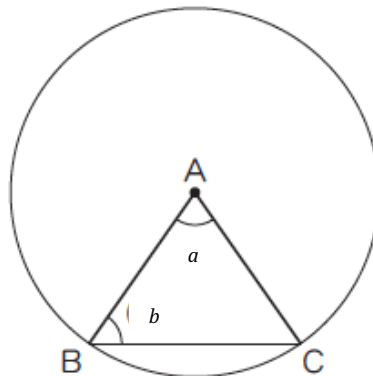
- [5] If we draw triangle ABC using a circle as shown below it will become an isosceles triangle.



- (1) The reason triangle ABC is an isosceles triangle is due to what property of circles?
Select the most appropriate one from **1** through **4** below and write the number.

- 1** The radii of a circle are all equal in length.
- 2** The circumference of a circle is about 3.14 times of the diameter.
- 3** The diameter of a circle is twice as long as its radius.
- 4** The length of the diameter of a circle is the longest of all segments connecting 2 points on the circle.

- (2) If the measure of angle a below is 70° , how many degrees is the measure of angle b . Write your answer.



- [6] To draw a net of the rectangular prism in Figure 1 below, 5 of the 6 faces have been drawn as shown in Figure 2.

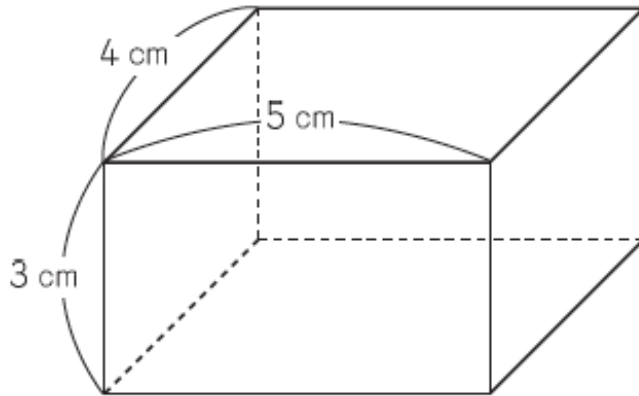


Figure 1

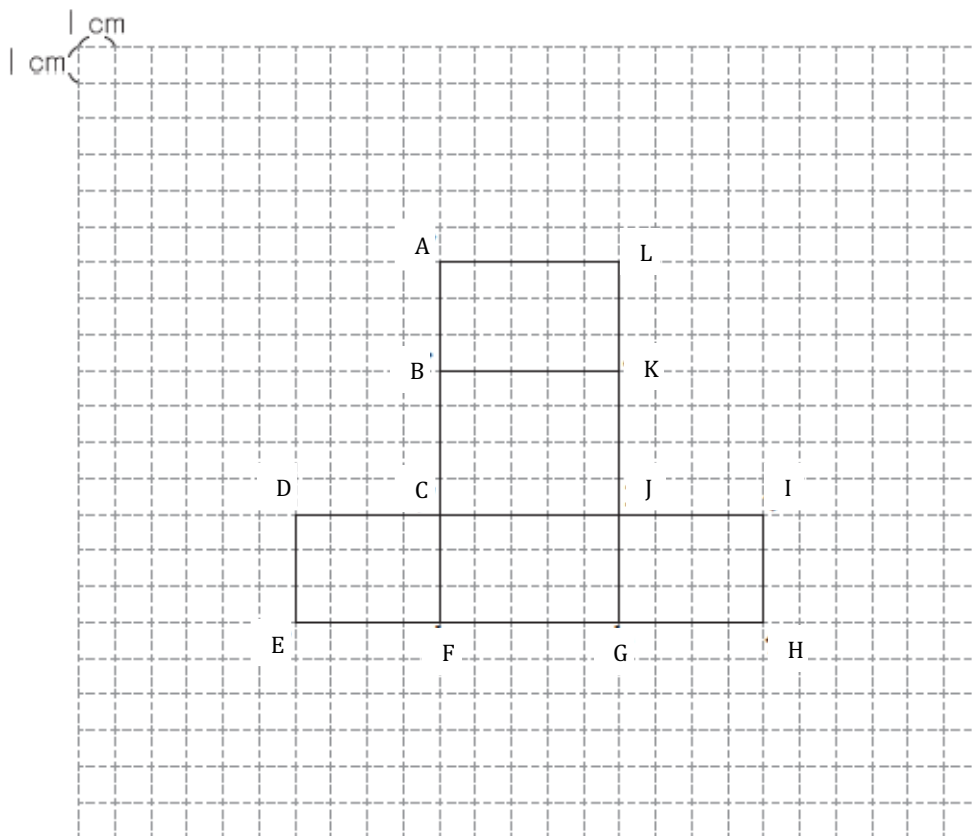


Figure 2

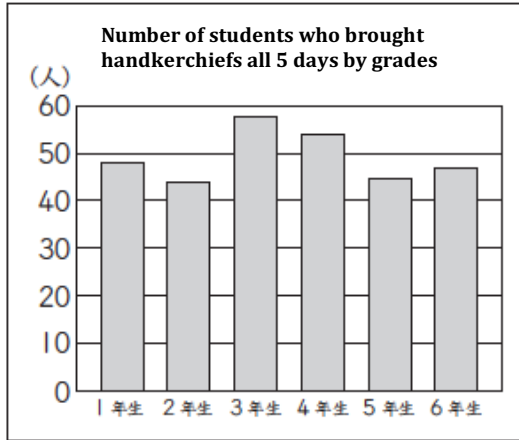
(1) What are the dimensions of the last face? Write the length and width of the rectangle.

(2) The net can be completed by drawing the last face attached to one of the sides shown in **1** through **4** below. Which side is it? Select one from **1** through **4** and write the number.

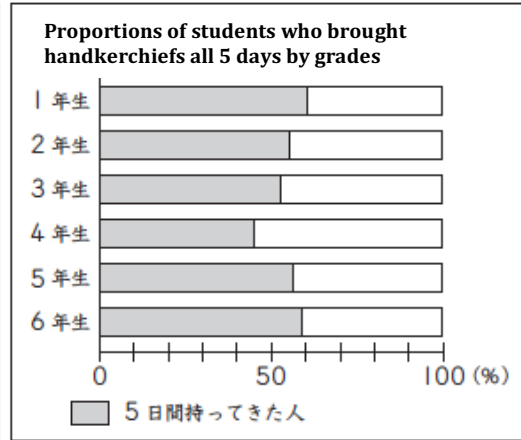
- 1** Side CD
- 2** Side DE
- 3** Side GH
- 4** Side KL

[7] For 5 days, we surveyed all students at the school whether or not they brought their handkerchiefs each day and summarized the results in the 4 graphs below.

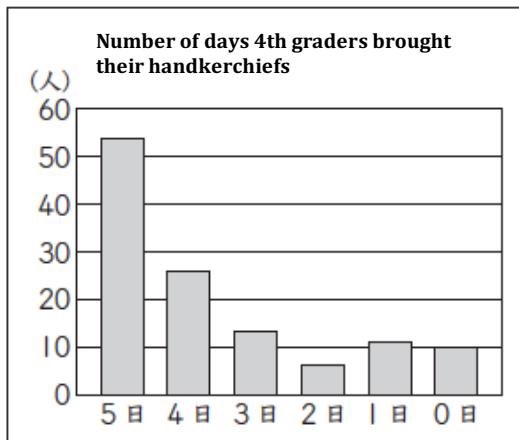
1



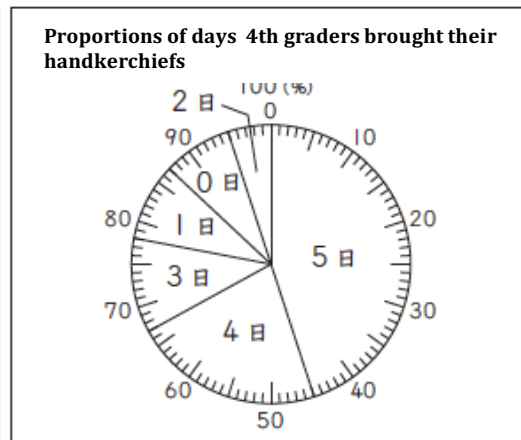
2



3



4



<<<<<<{graph 1} Vertical axis: Students
Horizontal axis: Grade 1, Grade 2,... Grade 6 (left to right)

{graph 2} Vertical axis: Grade 1, Grade 2, ... Grade 6 (top to bottom)
Key: Shaded box represents students who brought handkerchiefs all 5 days.

{graph 3} Vertical axis: Students
Horizontal axis: 5 days, 4 days, ... 0 day (from left to right)

{graph 4} Sectors show the number of days.

After examining the 4 graphs, we noticed the following from one graph.

What is noticed

The only grade in which less than a half of all the students in the grade brought their handkerchiefs on all 5 days is Grade 4.

From which of the graph, can we see this?
Select one from graph 1 through 4 and write the number.

- [8] We are going to think about ways to determine the number of ○ arranged as shown in Figure 1.

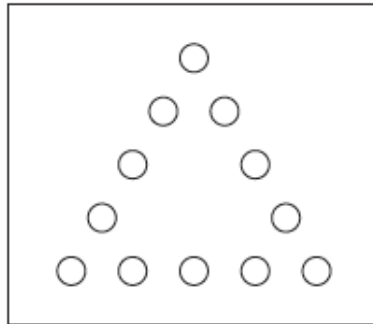


Figure 1

We wrote the expressions to calculate the number of ○ by grouping ○ as shown in Figure 2 and Figure 3.

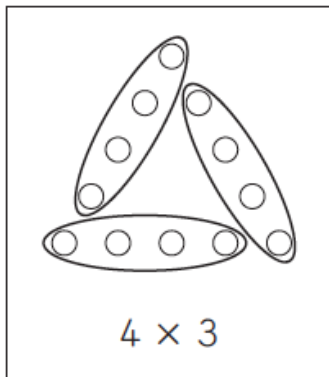


Figure 2

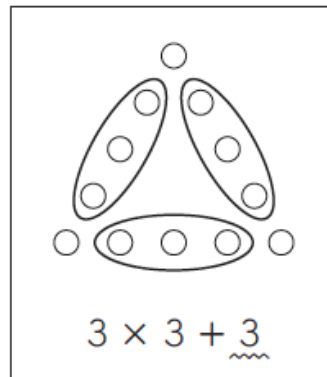


Figure 3

Which ○ does the underlined "3" in the expression for Figure 3 represent?
Shade all ○ that are represented in the figure on the answer sheet.