5th Kyu

数学検定

PROFICIENCY TEST
IN
PRACTICAL MATHEMATICS

Section 1 : Calculation Test

Test Time : 50 minutes

--- Test Instructions ---

1. Make sure that you have the correct level (Kyu) test.

2. Do not open the booklet until you are told to do so.

3. Write your examinee number and name on this page.

4. Write your name, examinee number and other necessary information on the answer sheet.

5. Write only answers on the answer sheets provided.

6. If your answer contains a fraction, write the fraction in simplest form by reducing it to lowest terms.

7. You may not use a calculator, ruler or compass.

8. Turn off your cell phone and do not use it during the test.

9. Ask an examination supervisor if your problem sheets have inconsistent page numbering or missing pages.

10. It is prohibited to disclose the problems to the general public, such as on the Internet, without permission.

Examinee Number	—	Name	

※Your personal information will be handled appropriately according to the "Handling of Personal Information" agreement that was approved at the time of registration.

公益財団法人
日本数学検定協会
The Mathematics Certification Institute of Japan

[5th Kyu]　　Section 1: Calculation Test

1 Calculate.

(1) 4.19×3.2

(2) $37.41 \div 4.3$

(3) $\dfrac{1}{3} + \dfrac{4}{15}$

(4) $\dfrac{7}{8} - \dfrac{5}{12}$

(5) $\dfrac{27}{40} \times \dfrac{16}{45}$

(6) $\dfrac{5}{26} \div \dfrac{10}{39}$

(7) $\dfrac{21}{22} \div \dfrac{9}{28} \times \dfrac{11}{49}$

(8) $15 \times \left(\dfrac{2}{3} - \dfrac{1}{5} \right)$

(9) $7 + (-13) - 5$

(10) $-6^2 \div (-9)$

(11) $5(3x - 8) - 3(2x - 9)$

(12) $0.4(2x - 3) + 0.7(3x - 4)$

2 Find the greatest common factor (GCF) for each set of numbers.

(13) (24, 32)

(14) (30, 75, 105)

3 Find the least common multiple (LCM) for each set of numbers.

(15) (12, 15)

(16) (28, 42, 70)

4 Write each of the following ratios in simplest form.

(17) 27 : 45

(18) $\dfrac{3}{5} : \dfrac{5}{6}$

5 Fill in the blanks with numbers.

(19) 7 : 2 = 28 : ☐

(20) 2.4 : 3 = ☐ : 20

6   Solve the following equations.

(21) $4x - 6 = -5x + 12$ (22) $\dfrac{2x-4}{3} = \dfrac{3x+1}{4}$
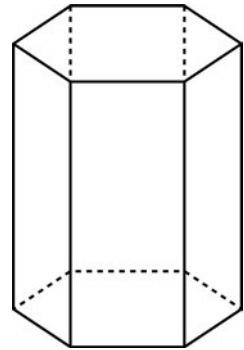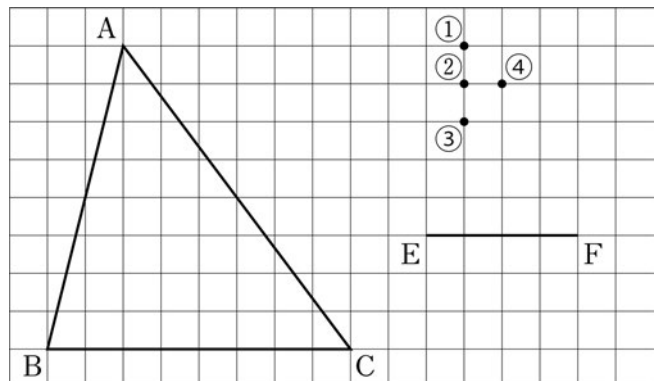
7   Answer the following.

(23)   The weights of five kiwi fruits are as follows. Find the average (mean) weight in g.

     83 g,   86 g,   84 g,   87 g,   84 g

(24)   How many faces does a hexagonal prism have?

(25)   In the figure, the position of vertex D is determined so that △DEF is a reduction of △ABC with a scale factor $\dfrac{1}{2}$. Choose one from ① to ④ for vertex D.

(26)   Find the median of the following data.

1, 2, 4, 4, 5, 7, 8, 9

(27)   Find the value of $-2x+7$ when $x=5$.

(28) y is directly proportional to x and $y=21$ when $x=-7$. Find the value of y when $x=5$.

(29) y is inversely proportional to x and $y=-10$ when $x=-4$. Express y in terms of x.

(30)   The figure shows right-angled triangle ABC. Express the relationship between the perpendicular sides using the letters of the vertices and the symbol $\perp$.