

# MATHEMATICS

## WORKBOOK

6A

### Answer Key

Name

KYOIKU DOJINSHA

## 2 Review(1)

1

① 36

② 3

2

③ 38.18

④ 43.50

⑤ 0.5200

⑥ 3.8

⑦ 8.5

⑧ 1.95

3

⑨  $\frac{7}{6} = 1\frac{1}{6}$

⑩  $\frac{7}{12}$

## 3 Review(2)

1

①  $7 \times 5.6 \div 2 = 19.6$

②  $19.6 \text{ cm}^2$

③  $6 \times 6 \times \pi = 113.04$

④  $113.04 \text{ cm}^2$

2

⑤  $371,819 \div 277 = 1342. \dots$

⑥  $1300 \text{ ppl/km}^2$

3

⑦  $2700 \div 0.75 = 3600$

⑧ 3600 yen

## 4 I. Multiplication and Division of Fractions

1

①  $\frac{1}{5} \times 4 = \frac{1 \times 4}{5} = \frac{4}{5}$

② numerator, multiplier

2

③  $\frac{4}{9}$

④  $\frac{5}{8}$

⑤  $\frac{6}{7}$

⑥  $\frac{9}{8} = 1\frac{1}{8}$

⑦  $\frac{20}{9} = 2\frac{2}{9}$

⑧  $\frac{15}{4} = 3\frac{3}{4}$

3

⑨  $\frac{2}{3} \times 7 = \frac{14}{3} = 4\frac{2}{3}$

⑩  $4\frac{2}{3} \text{ m}$

## 5 I. Multiplication and Division of Fractions

$$\textcircled{1} \frac{2}{5} \div 3 = \frac{2}{5 \times 3} = \frac{2}{15}$$

② denominator, divisor

2

$$\textcircled{3} \frac{1}{8} \qquad \textcircled{4} \frac{2}{45}$$

$$\textcircled{5} \frac{5}{42} \qquad \textcircled{6} \frac{5}{32}$$

$$\textcircled{7} \frac{3}{20} \qquad \textcircled{8} \frac{9}{14}$$

3

$$\textcircled{9} \frac{2}{3} \div 5 = \frac{2}{3 \times 5} = \frac{2}{15}$$

$$\textcircled{10} \frac{2}{15} \text{ kg}$$

## 6 ① Multiplying by a Fraction

$$\textcircled{1} \frac{1}{3} \times \frac{5}{6} = \frac{1 \times 5}{3 \times 6} = \frac{5}{18}$$

② numerators

2

$$\textcircled{3} \frac{12}{35} \qquad \textcircled{4} \frac{8}{27}$$

$$\textcircled{5} \frac{4}{63} \qquad \textcircled{6} \frac{21}{80}$$

$$\textcircled{7} \frac{15}{28} \qquad \textcircled{8} \frac{35}{48}$$

$$\textcircled{9} \frac{7}{48} \qquad \textcircled{10} \frac{40}{63}$$

## 7 ① Multiplying by a Fraction

$$\textcircled{1} \frac{6}{7} \times \frac{5}{12} = \frac{\overset{1}{6} \times 5}{7 \times \underset{2}{12}} = \frac{5}{14}$$

$$\textcircled{2} \frac{1}{14} \qquad \textcircled{3} \frac{18}{25}$$

$$\textcircled{4} \frac{2}{33} \qquad \textcircled{5} \frac{9}{14}$$

$$\textcircled{6} \frac{2}{5} \qquad \textcircled{7} \frac{2}{15}$$

$$\textcircled{8} \frac{6}{7} \qquad \textcircled{9} \frac{1}{3}$$

$$\textcircled{10} \frac{2}{3}$$

Let's try these! 

$$\textcircled{1} \frac{5}{14} \qquad \textcircled{2} \frac{27}{35}$$

$$\textcircled{3} \frac{1}{5} \qquad \textcircled{4} \frac{1}{4}$$

## 8 ① Multiplying by a Fraction

$$\textcircled{1} 2 \times \frac{3}{5} = \frac{2 \times 3}{1 \times 5} = \frac{6}{5}$$

2

$$\textcircled{2} \frac{14}{9} = 1\frac{5}{9} \qquad \textcircled{3} \frac{32}{5} = 6\frac{2}{5}$$

$$\textcircled{4} \frac{6}{5} = 1\frac{1}{5} \qquad \textcircled{5} \frac{11}{4} = 2\frac{3}{4}$$

$$\textcircled{6} \frac{21}{8} = 2\frac{5}{8} \qquad \textcircled{7} \frac{36}{11} = 3\frac{3}{11}$$

$$\textcircled{8} \frac{7}{3} = 2\frac{1}{3} \qquad \textcircled{9} \frac{16}{3} = 5\frac{1}{3}$$

$$\textcircled{10} \frac{20}{3} = 6\frac{2}{3}$$

Let's try these! 

$$\textcircled{1} \frac{14}{15} \qquad \textcircled{2} \frac{5}{7}$$

$$\textcircled{3} \frac{18}{7} = 2\frac{4}{7} \qquad \textcircled{4} \frac{4}{3} = 1\frac{1}{3}$$

**9** ① Multiplying by a Fraction**1**

$$\textcircled{1} 2\frac{1}{2} \times 1\frac{2}{3} = \frac{5}{2} \times \frac{5}{3} = \frac{5 \times 5}{2 \times 3}$$

**2**

$$\textcircled{2} \frac{33}{8} = 4\frac{1}{8} \quad \textcircled{3} \frac{100}{21} = 4\frac{16}{21}$$

$$\textcircled{4} \frac{49}{4} = 12\frac{1}{4} \quad \textcircled{5} \frac{12}{5} = 2\frac{2}{5}$$

$$\textcircled{6} \frac{11}{3} = 3\frac{2}{3} \quad \textcircled{7} \frac{9}{5} = 1\frac{4}{5}$$

$$\textcircled{8} \frac{20}{7} = 2\frac{6}{7} \quad \textcircled{9} \frac{9}{2} = 4\frac{1}{2}$$

**10** 6**Let's try these!** 

$$\textcircled{1} \frac{57}{7} = 8\frac{1}{7} \quad \textcircled{2} \frac{20}{3} = 6\frac{2}{3}$$

$$\textcircled{3} \frac{19}{5} = 3\frac{4}{5} \quad \textcircled{4} \frac{33}{25} = 1\frac{8}{25}$$

**10** ① Multiplying by a Fraction**1**

$$\textcircled{1} \frac{3}{5} \times \frac{3}{4} = \frac{9}{20}$$

**2**

$$\textcircled{2} \frac{7}{8_2} \times \frac{4_1}{5} = \frac{7}{10}$$

$$\textcircled{3} \frac{7}{10} \text{ km}^2$$

**3**

$$\textcircled{4} \frac{2}{3} \times \frac{2}{3} = \frac{4}{9}$$

$$\textcircled{5} \frac{4}{9} \text{ m}^2$$

**4**

$$\textcircled{6} \frac{3_1}{4_1} \times \frac{8^2}{9_3} = \frac{2}{3}$$

$$\textcircled{7} \frac{2}{3} \text{ m}^2$$

**11** ① Multiplying by a Fraction**1**

$$\textcircled{1} \frac{9}{10} \times \frac{3}{5} = \frac{27}{50}$$

$$\textcircled{2} \frac{27}{50} \text{ kg}$$

**2**

$$\textcircled{3} \frac{3}{4} \times 3\frac{1}{3} = \frac{3_1}{4_2} \times \frac{10^5}{3_1} = \frac{5}{2} = 2\frac{1}{2}$$

$$\textcircled{4} 2\frac{1}{2} \text{ kg}$$

**3**

$$\textcircled{5} \frac{5}{6} \times 7 = \frac{35}{6} = 5\frac{5}{6}$$

$$\textcircled{6} 5\frac{5}{6} \ell$$

**12** ① Multiplying by a Fraction**1**

$$\textcircled{1} 180$$

$$\textcircled{2} 96$$

**2**

$$\textcircled{3} <$$

$$\textcircled{4} >$$

**3**

$$\textcircled{5} \text{ (b)}$$

$$\textcircled{6} \text{ (c)}$$

**4**

$$\textcircled{7} \text{ (b)}$$

$$\textcircled{8} \text{ (d)}$$

**13** ① Multiplying by a Fraction**1**

①  $\frac{4}{15}$

②  $\frac{5}{21}$

③  $3\frac{1}{3}$

④  $\frac{3}{14}$

⑤ 6

⑥ 3

**2**

⑦  $(\frac{4}{5} + 2\frac{2}{5}) \times \frac{1}{4} = \frac{16}{5} \times \frac{1}{4} = \frac{4}{5}$

⑧  $(1\frac{3}{5} + 3\frac{2}{5}) \times \frac{2}{15} = 5 \times \frac{2}{15} = \frac{2}{3}$

**3**

⑨  $3\frac{1}{2} \times (\frac{4}{5} + 1\frac{11}{35}) = \frac{7}{2} \times (\frac{28+46}{35})$   
 $= \frac{7}{2} \times \frac{74}{35} = \frac{37}{5} = 7\frac{2}{5}$

⑩  $7\frac{2}{5} m^2$

**14** ② Times as Much and Multiplication**1**

①  $6\frac{2}{3}$

②  $\frac{4}{5}$

**2**

③  $15 \times \frac{4}{5} = 12$

④ 12m

**3**

⑤  $33\frac{3}{5} \times 1\frac{1}{3} = \frac{168}{5} \times \frac{4}{3} = \frac{224}{5}$   
 $= 44\frac{4}{5}$

⑥  $44\frac{4}{5} \text{ kg}$

**4**

⑦  $400 \times (1 - \frac{3}{8}) = 250$

⑧ 250 yen

**15** 2. Multiplication of Fractions**◆**

①  $\frac{4}{7}$

②  $\frac{3}{2} = 1\frac{1}{2}$

③  $\frac{1}{2}$

④  $\frac{13}{4} = 3\frac{1}{4}$

⑤  $\frac{1}{24}$

⑥  $\frac{2}{15}$

⑦  $\frac{2}{7}$

⑧  $\frac{5}{9}$

⑨  $\frac{7}{24}$

⑩  $\frac{1}{3}$

⑪  $\frac{3}{5}$

⑫  $\frac{1}{3}$

⑬  $\frac{5}{6}$

⑭  $\frac{24}{35}$

⑮ 2

⑯ 10

⑰  $\frac{1}{15}$

⑱  $\frac{3}{16}$

⑲  $\frac{1}{6}$

⑳  $\frac{9}{2} = 4\frac{1}{2}$

**16** 2. Multiplication of Fractions**1**

①  $\frac{7}{10} \times \frac{5}{8} = \frac{7}{16}$

②  $\frac{7}{16} m^2$

**2**

③  $200 \times \frac{3}{4} = 150$

④ 150 yen

**3**

⑤ 40

⑥ 44

⑦ 16

**4**

⑧ Mother :  $42 \times 1\frac{2}{7} = 54$

Sister :  $42 \times \frac{2}{3} = 28$

⑨ 54 kg

⑩ 28 kg

**17** ① Dividing by a Fraction**1**

$$\textcircled{1} \frac{1}{2} \div \frac{2}{3} = \frac{1 \times \boxed{3}}{2 \times \boxed{2}} = \frac{\boxed{3}}{\boxed{4}}$$

② numerator

**2**

③  $\frac{8}{27}$

④  $\frac{6}{35}$

⑤  $\frac{15}{16}$

⑥  $\frac{9}{20}$

⑦  $\frac{24}{7} = 3\frac{3}{7}$

⑧  $\frac{36}{35} = 1\frac{1}{35}$

⑨  $\frac{15}{8} = 1\frac{7}{8}$

⑩  $\frac{63}{20} = 3\frac{3}{20}$

**18** ① Dividing by a Fraction**1**

$$\textcircled{1} \frac{3}{7} \div \frac{3}{4} = \frac{\overset{\boxed{1}}{3} \times \boxed{4}}{\underset{\boxed{1}}{7} \times \boxed{3}} = \frac{\boxed{4}}{\boxed{7}}$$

**2**

②  $\frac{7}{16}$

③  $\frac{12}{25}$

④  $\frac{15}{8} = 1\frac{7}{8}$

⑤  $\frac{20}{9} = 2\frac{2}{9}$

⑥  $\frac{4}{5}$

⑦  $\frac{3}{10}$

⑧  $\frac{5}{8}$

⑨  $\frac{10}{3} = 3\frac{1}{3}$

⑩  $\frac{4}{3} = 1\frac{1}{3}$

**Let's try these!** 

①  $\frac{10}{9} = 1\frac{1}{9}$

②  $\frac{22}{27}$

③  $\frac{1}{4}$

④  $\frac{1}{8}$

**19** ① Dividing by a Fraction**1**

$$\textcircled{1} 6 \div \frac{5}{8} = \frac{\boxed{6}}{\boxed{1}} \div \frac{5}{8} = \frac{\boxed{6} \times \boxed{8}}{\boxed{1} \times \boxed{5}} = \boxed{9}\frac{\boxed{3}}{\boxed{5}}$$

**2**

②  $\frac{15}{2} = 7\frac{1}{2}$

③  $\frac{21}{4} = 5\frac{1}{4}$

④  $\frac{9}{2} = 4\frac{1}{2}$

⑤  $\frac{33}{2} = 16\frac{1}{2}$

⑥  $\frac{3}{32}$

⑦  $\frac{5}{42}$

⑧  $\frac{1}{5}$

⑨  $\frac{2}{13}$

⑩  $\frac{2}{27}$

**Let's try these!** 

① 21

②  $\frac{45}{4} = 11\frac{1}{4}$

③  $\frac{3}{20}$

④  $\frac{1}{24}$

**20** ① Dividing by a Fraction**1**

$$\textcircled{1} 2\frac{1}{4} \div 1\frac{3}{4} = \frac{\boxed{9}}{\boxed{4}} \div \frac{\boxed{7}}{\boxed{4}} = \frac{\overset{\boxed{1}}{9} \times \boxed{4}}{\underset{\boxed{1}}{4} \times \boxed{7}} = \boxed{1}\frac{\boxed{2}}{\boxed{7}}$$

**2**

②  $\frac{52}{35} = 1\frac{17}{35}$

③  $\frac{14}{27}$

④  $\frac{44}{39} = 1\frac{5}{39}$

⑤  $\frac{5}{8}$

⑥  $\frac{54}{35} = 1\frac{19}{35}$

⑦ 12

⑧  $\frac{15}{56}$

⑨  $\frac{1}{4}$

⑩  $\frac{3}{25}$

**Let's try these!** 

①  $\frac{14}{19}$

②  $\frac{3}{4}$

③  $\frac{8}{3} = 2\frac{2}{3}$

④  $\frac{7}{18}$

**21** ① Dividing by a Fraction**1**

①  $\frac{4}{9} \div \frac{7}{8} = \frac{4}{9} \times \frac{8}{7} = \frac{32}{63}$

②  $\frac{32}{63} m^2$

**2**

③  $3\frac{3}{4} \div 1\frac{1}{2} = \frac{15}{4} \div \frac{3}{2} = \frac{15}{4} \times \frac{2}{3} = \frac{5}{2} = 2\frac{1}{2}$

④  $2\frac{1}{2} m$

**3**

⑤  $6\frac{3}{7} \div 9 = \frac{45}{7} \div 9 = \frac{45}{7} \times \frac{1}{9} = \frac{5}{7}$

⑥  $\frac{5}{7} kg$

**22** ① Dividing by a Fraction**1**

① 480

② 350

**2**

③ &gt;

④ &lt;

**3**

⑤ (b)

⑥ (c)

**4**

⑦ (b)

⑧ (d)

**23** ② Times as Much and Division**1**

①  $\frac{9}{4} \div \frac{2}{3} = \frac{9}{4} \times \frac{3}{2} = \frac{27}{8} = 3\frac{3}{8}$

②  $3\frac{3}{8}$  times

③  $\frac{3}{7} \div \frac{2}{3} = \frac{3}{7} \times \frac{3}{2} = \frac{9}{14}$

④  $\frac{9}{14}$  times

**2**

⑤  $\frac{3}{4} \div \frac{2}{5} = \frac{3}{4} \times \frac{5}{2} = \frac{15}{8} = 1\frac{7}{8}$

⑥  $1\frac{7}{8}$  times

⑦  $\frac{5}{8} \div \frac{1}{2} = \frac{5}{8} \times \frac{2}{1} = \frac{5}{4} = 1\frac{1}{4}$

⑧  $1\frac{1}{4}$

**24** ② Times as Much and Division**1**

①  $x \div 1\frac{3}{4} = 63$

② 36 kg ( $63 \div 1\frac{3}{4} = 36$ )

**2**

③  $12 \div \frac{3}{5} = 12 \times \frac{5}{3} = 20$

④ 20 dl

**3**

⑤  $3200 \div 2\frac{2}{3} = 3200 \div \frac{8}{3} = 3200 \times \frac{3}{8} = 1200$

⑥ 1200 yen

**25** ③ Reciprocals and Fraction Calculation**1**

①  $\frac{2}{5} \times \frac{5}{2} = 1$

②  $\frac{1}{3} \times 3 = 1$

**2**

③  $\frac{9}{5}$

④ 4

⑤  $\frac{6}{7}$

⑥  $\frac{2}{5}$

⑦  $\frac{1}{8}$

⑧  $\frac{10}{9}$

**3**

⑨  $\frac{2}{3} \div \frac{3}{4} = \frac{2}{3} \times \frac{4}{3}$

⑩  $\frac{1}{4} \div 9 = \frac{1}{4} \times \frac{1}{9}$

**26** ③ Reciprocals and Fraction Calculation

◆

①  $\frac{5}{6} \times \frac{3}{2} \times \frac{8}{3} = \frac{5 \times 3 \times 8}{6 \times 2 \times 3} = \frac{10}{3} = 3\frac{1}{3}$

②  $\frac{8}{9} \times \frac{3}{4} \times \frac{6}{1} = \frac{8 \times 3 \times 6}{9 \times 4 \times 1} = 4$

③  $\frac{3}{4} \times \frac{7}{30} \times \frac{10}{7} = \frac{3 \times 7 \times 10}{4 \times 30 \times 7} = \frac{1}{4}$

④  $\frac{7}{9} \times \frac{6}{11} \times \frac{1}{7} = \frac{7 \times 6 \times 1}{9 \times 11 \times 7} = \frac{2}{33}$

⑤  $\frac{21}{5} \times \frac{1}{6} \times \frac{4}{7} = \frac{21 \times 1 \times 4}{5 \times 6 \times 7} = \frac{2}{5}$

⑥  $\frac{21}{10} \times \frac{10}{14} = \frac{3}{2} = 1\frac{1}{2}$

⑦  $\frac{25}{100} \times \frac{6}{1} \times \frac{10}{9} = \frac{25 \times 6 \times 10}{100 \times 1 \times 9} = \frac{5}{3} = 1\frac{2}{3}$

⑧  $\frac{25}{100} \times \frac{24}{10} \times \frac{10}{3} = \frac{25 \times 24 \times 10}{100 \times 10 \times 3} = 2$

⑨  $\frac{8}{1} \times \frac{1}{9} \times \frac{6}{1} \times \frac{1}{12} = \frac{8 \times 6}{9 \times 12} = \frac{4}{9}$

⑩  $\frac{7}{10} \times \frac{1}{5} \times \frac{4}{1} \times \frac{10}{36} = \frac{7 \times 4 \times 10}{10 \times 5 \times 36} = \frac{7}{45}$

**27** 3. Division of Fractions

◆

① 8

②  $\frac{14}{3} = 4\frac{2}{3}$

③  $\frac{1}{12}$

④  $\frac{1}{8}$

⑤  $\frac{3}{5}$

⑥  $\frac{3}{8}$

⑦  $\frac{4}{9}$

⑧  $\frac{32}{63}$

⑨  $\frac{10}{9} = 1\frac{1}{9}$

⑩  $\frac{20}{9} = 2\frac{2}{9}$

⑪  $\frac{10}{7} = 1\frac{3}{7}$

⑫  $\frac{5}{12}$

⑬  $\frac{25}{18} = 1\frac{7}{18}$

⑭  $\frac{4}{3} = 1\frac{1}{3}$

⑮  $\frac{16}{5} = 3\frac{1}{5}$

⑯  $\frac{2}{3}$

⑰  $\frac{6}{5} = 1\frac{1}{5}$

⑱  $\frac{1}{60}$

⑲  $\frac{3}{2} = 1\frac{1}{2}$

⑳ 6

**28** 3. Division of Fractions**1**

①  $\frac{4}{3}$

②  $\frac{1}{7}$

**2**

③  $\frac{6}{7} \div \frac{3}{14} = \frac{6}{7} \times \frac{14}{3} = 4$

④ 4 pieces

**3**

⑤  $3\frac{8}{9} \div \frac{2}{3} = \frac{35}{9} \times \frac{3}{2} = \frac{35}{6} = 5\frac{5}{6}$

⑥  $5\frac{5}{6}$  min

**4**

⑦  $1\frac{1}{4} \div \frac{5}{6} = \frac{5}{4} \times \frac{6}{5} = \frac{3}{2} = 1\frac{1}{2}$

⑧  $1\frac{1}{2}$  times

**5**

⑨  $600 \div \frac{3}{8} = 600 \times \frac{8}{3} = 1600$

⑩ 1600 yen

## 29 I can guess your birthday.

Example Month : 9, Day : 25

① First, multiply the month you were born by 2.

$$9 \times 2 = 18$$

② Then, add 5 to the answer in ①.

$$18 + 5 = 23$$

⑥ Did you get a 3-digit or 4-digit number? Write the numbers in  below. Is it correct?

③ Multiply the answer in ② by 50. Be careful with your calculation.

$$23 \times 50 = 1150$$

Answer

Month  9 Day:  2  5

④ Add the day of the month you were born to the answer in ③.

$$1150 + 25 = 1175$$

⑤ Finally, subtract 250 from the answer in ④.

$$1175 - 250 = 925$$

## 30 What Calculations Are We Going to Use?

①

$$1\frac{3}{5} \times 6 = \frac{8}{5} \times 6 = \frac{48}{5} = 9\frac{3}{5}$$

$$② 9\frac{3}{5} dl$$

②

$$③ 900 \div \frac{3}{4} = 900 \times \frac{4}{3} = 1200$$

$$④ 1200 \text{ yen}$$

③

$$⑤ \frac{9}{10} \times 1\frac{1}{4} = \frac{9}{10} \times \frac{5}{4} = \frac{9}{8} = 1\frac{1}{8}$$

$$⑥ 1\frac{1}{8} m^2$$

## 31 Check(1)

①

$$① \frac{15}{8} = 1\frac{7}{8}$$

$$② \frac{10}{21}$$

$$③ \frac{13}{2} = 6\frac{1}{2}$$

$$④ \frac{2}{3}$$

$$⑤ \frac{1}{4}$$

$$⑥ \frac{28}{3} = 9\frac{1}{3}$$

$$⑦ \frac{12}{35}$$

$$⑧ \frac{5}{3} = 1\frac{2}{3}$$

$$⑨ \frac{9}{20}$$

$$⑩ \frac{21}{20} = 1\frac{1}{20}$$

②

$$⑪ \frac{42}{100} \times \frac{13}{1} \times \frac{10}{21} = \frac{13}{5} = 2\frac{3}{5}$$

$$⑫ \frac{14}{1} \times \frac{1}{15} \times \frac{12}{1} \times \frac{1}{7} = \frac{14 \times 12}{15 \times 7} = \frac{8}{5} = 1\frac{3}{5}$$

③

$$⑬ 10 \times 2\frac{3}{5} = 10 \times \frac{13}{5} = 26$$

$$⑭ 26 \text{ kg}$$

$$⑮ 3 \div 2\frac{2}{5} = 3 \times \frac{5}{12} = \frac{5}{4} = 1\frac{1}{4}$$

$$⑯ 1\frac{1}{4} \text{ times}$$

## 32 ① Line Symmetry

①

① Symmetrical about line  $\ell$

② line of symmetry

②

$$③ \times$$

$$④ \bigcirc$$

$$⑤ \bigcirc$$

$$⑥ \times$$

$$⑦ \times$$

$$⑧ \bigcirc$$

$$⑨ \times$$

$$⑩ \bigcirc$$



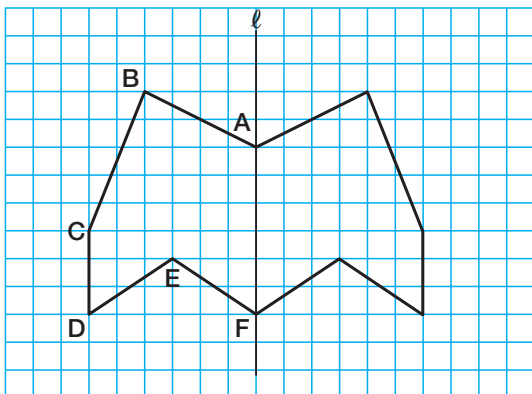
### 33 ① Line Symmetry

1

- ① I  
 ② HG  
 ③ They are the same.  
 ④ The two lines intersect perpendicularly.

2

5



### 34 ② Point Symmetry

1

- ① point symmetrical  
 ② center of symmetry

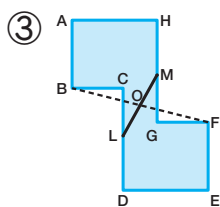
2

- ③ ○      ④ ×      ⑤ ×      ⑥ ○  
 ⑦ ×      ⑧ ○      ⑨ ×      ⑩ ○

### 35 ② Point Symmetry

1

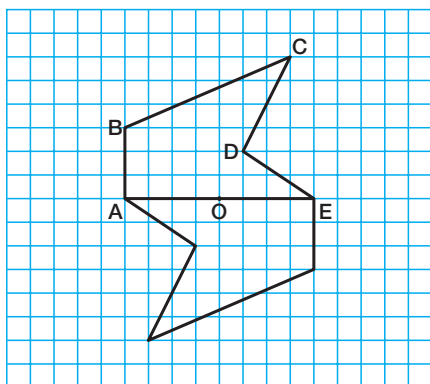
- ① E  
 ② GH



- ④ They are the same length.

2

5



### 36 ③ Polygons and Symmetry

1

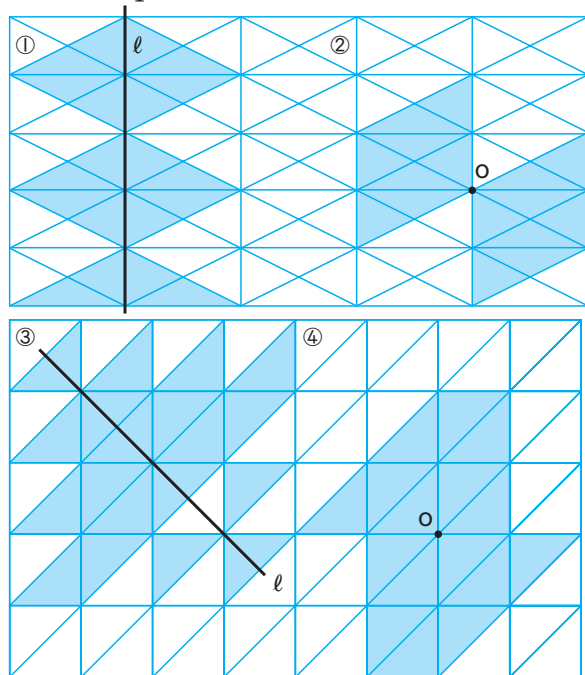
	Parallelogram	Rectangle	Rhombus	Square
Shapes that have line symmetry	×	① ○	② ○	③ ○
Number of line of symmetry	0	④ 2	⑤ 2	⑥ 4
Shapes that have point symmetry	○	⑦ ○	⑧ ○	⑨ ○

2

	Regular triangle	Regular pentagon	Regular hexagon	Regular octagon
Shapes that have line symmetry	⑩ ○	⑪ ○	⑫ ○	⑬ ○
Number of line of symmetry	⑭ 3	⑮ 5	⑯ 6	⑰ 8
Shapes that have point symmetry	⑱ ×	⑲ ×	○	⑳ ○

### 37 4. Symmetric Shapes

◆ Example



### 38 Recycling

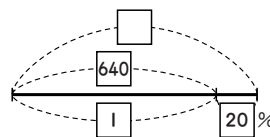
1

①  $1\frac{3}{8}$

②  $320 \times 1\frac{3}{8} = 440$

③ 440 students

2



④  $640 \times (1 + 0.2) = 768$

⑤ 768 yen

### 39 Recycling

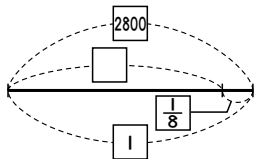
1

① 0.25

②  $1600 \times 0.25 = 400$

③ 400 yen

2



④  $2800 \times (1 - \frac{1}{8}) = 2450$

⑤ 2450 yen

### 40 ① Ratio and Its Value

1

① ratio

② value of ratio

2

③  $\frac{2}{5}$

④  $\frac{3}{4}$

⑤ 7

⑥  $\frac{3}{2} = 1\frac{1}{2}$

3

⑦ ① and ④

⑧ ② and ③

4

⑨ 2.4 : 1.6

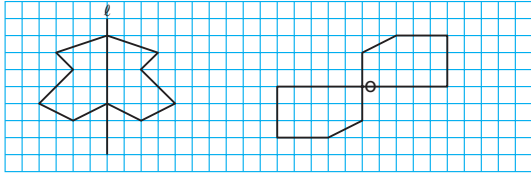
⑩  $\frac{3}{2} = 1\frac{1}{2}$



**45 Check (2)**

1

①



②

2

③  $\frac{1}{3}$

④  $\frac{5}{6}$

3

⑤ 5 : 8

⑥ 16 : 21

4

⑦ 4

⑧ 25

5

⑨  $16000 \times (1 + \frac{1}{8}) = 18000$

⑩ 18,000 people

**46** ① Enlarged Drawings and Reduced Drawings

1

① f

② c

2

③ 2 cm

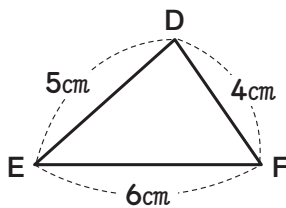
④  $70^\circ$

⑤  $\frac{1}{2}$

**47** ① Enlarged Drawings and Reduced Drawings

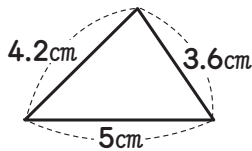
1

①



2

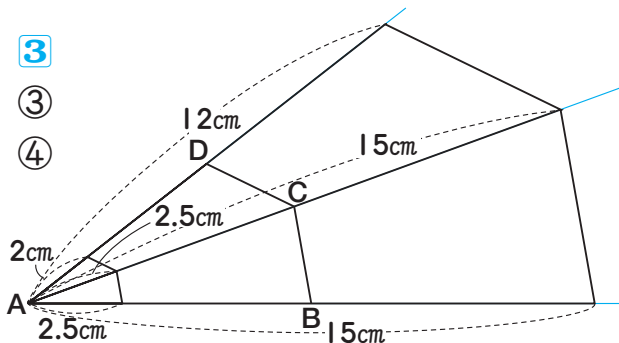
②



3

③

④



**48** ② Using Reduced Drawings

1

①  $20 m = 2000 cm, 5 \div 2000 = \frac{1}{400}$

②  $\frac{1}{400}$

③  $3.5 \times 400 = 1400, 1400 cm = 14 m$

④ 14 m

⑤  $0.5 \times 400 = 200, 2 \times 400 = 800$

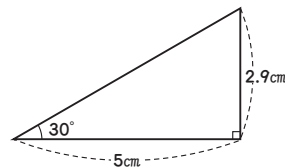
$200 cm = 2 m, 800 cm = 8 m$

$2 \times 8 = 16$

⑥  $16 m^2$

2

⑦



⑧  $2.9 \times 1000 = 2900, 2900 cm = 29 m$

⑨ 29 m

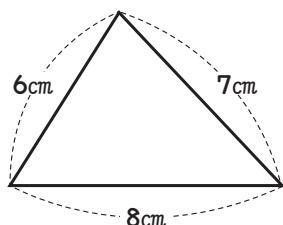
### 49 6. Enlarged Drawings and Reduced Drawings

1

- ① 2 times  
② 6 cm  
③  $56^\circ$

2

④



3

- ⑤  $15 \times \frac{1}{250} = 0.06 \text{ m}, 0.06 \text{ m} = 6 \text{ cm}$   
⑥ 6 cm

### 50 ① Different Ways of Changing Quantities ② Properties of Proportional Relationships

1

- ① doubles or triples  
② 40 g  
③ Yes

2

④

Length of Side (cm)	1	2	3	4	5	6	7
Perimeter (cm)	3	6	9	12	15	18	21

- ⑤ Yes

### 51 ② Properties of Proportional Relationships

1

- ① ① a)  $\frac{1}{2}$ , b)  $\frac{1}{3}$

- ②  $\frac{1}{4}$  of the original perimeter

- ③ Yes

2

④

Width (cm)	1	2	3	4	5	6
Area (cm <sup>2</sup> )	6	12	18	24	30	36

- ⑤ Yes

### 52 ③ Equations of Proportional Relationships and their Graphs

1

- ① Yes  
② 200  
③ How far the car travels in 1 min.  
④  $y = 200 \times x$   
⑤ 2000 m  
⑥ 4800 m

2

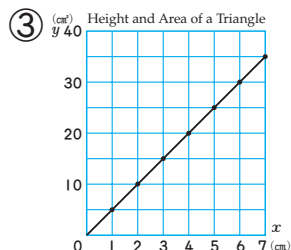
- ⑦  $y = 3 \times x$   
⑧ 15 cm ( $3 \times 5 = 15$ )  
⑨ 36 cm ( $3 \times 12 = 36$ )  
⑩ 16 cm ( $48 \div 3 = 16$ )

### 53 ③ Equations of Proportional Relationships and their Graphs

1

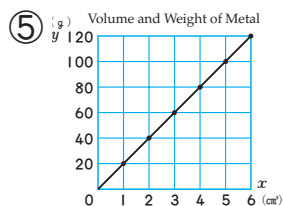
①	Height (cm)	1	2	3	4	5	6
	Area (cm <sup>2</sup> )	5	10	15	20	25	30

②  $y = 5 \times x$



2

④  $y = 20 \times x$



### 54 ④ Using Proportional Relationships

1

①  $96 \div 2 = 48$

② 48

③  $48 \times 14 = 672$

④ 672 g

⑤  $14 \div 2 = 7, 96 \times 7 = 672$

⑥ 672 g

2

⑦	7	18
	84	?

(Example)

$84 \div 7 = 12$

$12 \times 18 = 216$

⑧ 216 g

3

⑨	224	64
	?	100

(Example)

$224 \div 64 = 3.5$

$100 \times 3.5 = 350$

⑩  $350 \text{ cm}^2$

### 55 7. Proportional Relationships

1

① ○

② ×

③ ×

④ ○

2

⑤ 4

⑥ 20

3

⑦ Yes

⑧ 6

⑨ becomes twice, three times, ...  
as large as the original value⑩ becomes  $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots$  as large as the  
original value

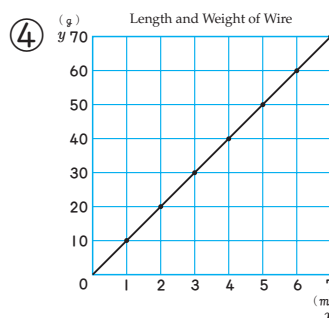
### 56 7. Proportional Relationships



① 10

② Weight of every 1 cm of wire.

③  $y = 10 \times x$



⑤ 25 ( $10 \times 2.5 = 25$ )

⑥ 6.5 ( $65 \div 10 = 6.5$ )

**57** Potato Thief

Answer : 36 potatoes

$$(1 + 2) \times 2 = 6$$

↓

$$(6 + 2) \times 2 = 16$$

↓

$$(16 + 2) \times 2 = 36$$

**58** ① Properties of Inverse Proportions**1**

① • ②

Length (cm)	1	2	3	4	5	6
Width (cm)	12	6	4	3	2.4	2

③ It becomes  $\frac{1}{2}$ ,  $\frac{1}{3}$ , ... of the original width.

④ Yes

⑤ 1.5 cm

**2**

⑥ ~ ⑧

Speed (km/hr)	1	2	3	4	5	6
Time (Hour)	24	12	8	6	4.8	4

⑨  $\frac{1}{2}$ ,  $\frac{1}{3}$ , ... of the original value.

⑩ inversely proportional

**59** ① Properties of Inverse Proportions**1**

① Yes

② a)  $\frac{1}{4}$ , b) 3**2**

③ Yes

④ 2, 3, ... times as large as the original

⑤ 2.4 ℓ

**60** ② Equations of Inverse Proportions and Their Graphs**1**

① Yes

② 42

③ The area of the parallelogram

④  $y = 42 \div x$  ( $x \times y = 42$ )⑤ 12 cm ( $42 \div 3.5 = 12$ )⑥ 4.2 cm ( $42 \div 10 = 4.2$ )**2**⑦  $y = 8 \div x$  ( $x \times y = 8$ )⑧ 2 m ( $8 \div 4 = 2$ )⑨ 0.8 m ( $8 \div 10 = 0.8$ )⑩ 5 students ( $8 \div 1.6 = 5$ )

