

MATHEMATICS

WORKBOOK

6B

Answer Key

Name

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2 ① Prisms and Cylinders

1

- ① Base
- ② Height
- ③ Lateral Surface
- ④ Base

2

- ⑤ parallel
- ⑥ 9, 3
- ⑦ 7, 15

3

- ⑧ triangular prism
- ⑨ cylinder
- ⑩ hexiagonal prism

3 ① Prisms and Cylinders

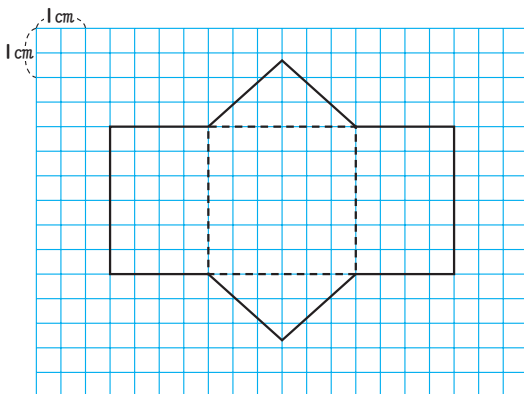
1

- ① 5 cm
- ② circumference of the base
- ③ $4 \times 3.14 = 12.56$ 12.56 cm

2

- ④ 3 cm

5



4 ② Pyramids and Cones

1

- ① Vertex
- ② Edge
- ③ Lateral Surface
- ④ Base

2

- ⑤ circle
- ⑥ perpendicular, height

3

- ⑦ square pyramid
- ⑧ triangle
- ⑨ square
- ⑩ the same

5 ② Pyramids and Cones

1

① 12 cm

② $6 \times 3.14 = 18.84$ 18.84 cm

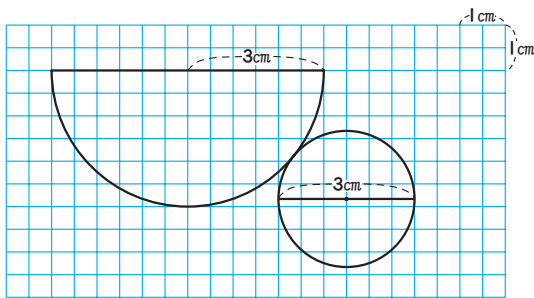
2

③ triangular pyramid

④ b)

3

5



6 ③ Looking at Shapes From Directly in Front and Directly Above

1

① rectangle

③ triangle

② triangle

④ circle

2

⑤ rectangular prism

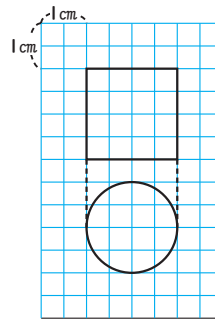
⑥ triangular pyramid

⑦ hexagonal prism

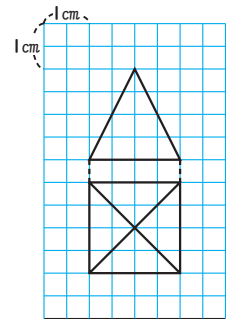
⑧ sphere

3

9



10



7 9. Solid Figures

1

① 5

② 15

③ rectangle

④ pentagon

2

⑤ rectangular prism ⑥ cylinder

3

⑦ 8 cm ⑧ 5 cm ⑨ 8 cm ⑩ 31.4 cm

8 9. Solid Figures

1

① 3

② 9

③ rectangle

④ triangle

2

⑤ square pyramid

⑥ 5 cm

⑦ A

3

⑧ cone

⑨ 31.4 ⑩ 20 cm ($31.4 \times 4 \div 3.14 \div 2 = 20$)

9 ① Surface Area of Solid Figures**1**

① base

② base

2

③ quadrilateral

④ $3 \times 3 + 3 \times (7 - 3) \div 2 = 15$

15 cm^2

⑤ $(3 + 7 + 5 + 3) \times 6 = 108$

108 cm^2

⑥ $108 + 15 \times 2 = 138$ 138 cm^2

3

⑦ $10 \times 3.14 \times 12 = 376.8$

376.8 cm^2

⑧ $(10 \div 2) \times (10 \div 2) \times 3.14 \times 2$
 $+ 376.8 = 533.8 \text{ cm}^2$

533.8 cm^2

10 ① Surface Area of Solid Figures**1**

① $10 \times 10 \div 2 \times 4 + 10 \times 10 = 300$

② 300 cm^2

③ $3 \times 6 \div 2 \times 4 + 3 \times 3 = 45$

④ 45 cm^2

2

⑤ $6 \times 6 \times 3.14 \div 2 +$

$(6 \div 2) \times (6 \times 2) \times 3.14 = 84.78$

⑥ 84.78 cm^2

3

⑦ $12 \times 2 \times 3.14 \div 4 \div 3.14 = 6$

⑧ 6 cm

⑨ $12 \times 12 \times 3.14 \div 4 +$

$(6 \div 2) \times (6 \div 2) \times 3.14 = 141.3$

⑩ 141.3 cm^2

11 ② Volume of Solid Figures**1**

① 3

② Area of the base \times Height

③ $5 \times 4 \times 3 = 60$

④ 60 cm^3

2

⑤ $3 \times 4 \div 2 \times 8 = 48$

⑥ 48 cm^3

⑦ $6 \times 6 \times 3.14 \times 15 = 1695.6$

⑧ 1695.6 cm^3

12 ② Volume of Solid Figures**1**

① Area of the base \times Height $\times \frac{1}{3}$

2

② $\frac{1}{3}$

③ $10 \times 10 \times 12 \times \frac{1}{3} = 400$

④ 400 cm^3

⑤ $10 \times 10 \times 3.14 \times 24 \times \frac{1}{3}$
 $= 2512$

⑥ 2512 cm^3

13 10. Surface Area and Volume of Solid Figures

1

$$\textcircled{1} (5 + 6 + 5) \times 7 + 6 \times 4 \div 2 \times 2 = 136$$

$$\textcircled{2} 136 \text{ cm}^2$$

2

$$\textcircled{3} 5 \times 4 \times 3.14 + (4 \div 2) \times (4 \div 2) \times 3.14 \times 2 = 87.92$$

$$\textcircled{4} 87.92 \text{ cm}^2$$

$$\textcircled{5} 5 \times 5 + 5 \times 6 \div 2 \times 4 = 85$$

$$\textcircled{6} 85 \text{ cm}^2$$

3

$$\textcircled{7} (4 \div 2) \times (4 \div 2) \times 3.14 + 8 \times 8 \times 3.14 \div 4 = 62.8$$

$$\textcircled{8} 62.8 \text{ cm}^2$$

14 10. Surface Area and Volume of Solid Figures

1

$$\textcircled{1} 4 \times 3 \div 2 \times 5 = 30$$

$$\textcircled{2} 30 \text{ cm}^3$$

2

$$\textcircled{3} (10 \div 2) \times (10 \div 2) \times 3.14 \times 9 \times \frac{1}{3} = 235.5$$

$$\textcircled{4} 235.5 \text{ cm}^3$$

$$\textcircled{5} 3 \times 3 \times 4 \times \frac{1}{3} = 12$$

$$\textcircled{6} 12 \text{ cm}^3$$

3

$$\textcircled{7} (10 \div 2) \times (10 \div 2) \times 3.14 = 78.5$$

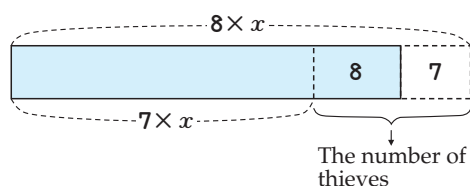
$$628 \div 78.5 = 8$$

$$\textcircled{8} 8 \text{ cm}$$

15 The Thief Who Stole Rolls of Cloth

The number of thieves : 15

The number of rolls of cloth : 113



$$8 \times 15 - 7 = 113$$

$$\text{(or } 7 \times 15 + 8 = 113)$$

16 11. The Number of Cases

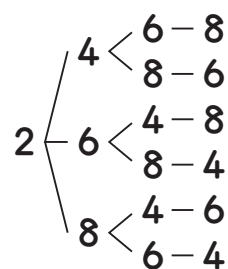
1

$$\textcircled{1} 4, 6, 8$$

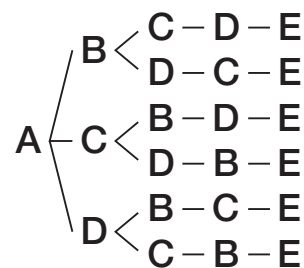
$$\textcircled{2} 6$$

$$\textcircled{3} 6$$

$$\textcircled{4} 24$$


2

$$\textcircled{5} 24$$



$$6 \times 4 = 24$$

17 | I. The Number of Cases

1

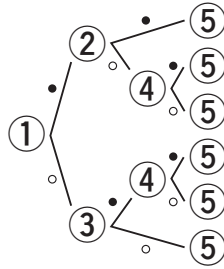
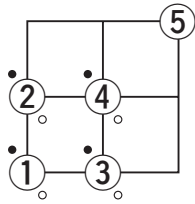
① 2

② 2

③ 8

2

④ 6



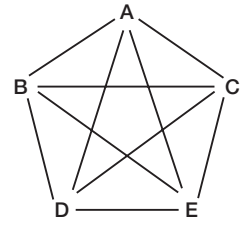
18 | I. The Number of Cases

1

① B, C, D, E

② A, C, D, E

③ 10



2

④ 6

	Class A	Class B	Class C	Class D
Class A		A·B	A·C	A·D
Class B	B·A		B·C	B·D
Class C	C·A	C·B		C·D
Class D	D·A	D·B	D·C	

A·B is the same as B·A.

19 Shopping

1 3000yen

$$(350 + 400) \times 2 \times 2 \\ = 750 \times 4 = 3000$$

2 3600yen

$$(600 + 1000) \times \frac{3}{2} + 1200 \\ = 1600 \times \frac{3}{2} + 1200 \\ = 2400 + 1200 = 3600$$

20 Check(4)

1

① hexagon

② hexagon prism

③ GHIJKL

④ 6

2

⑤ $(12 + 4) \times 3 \div 2 \times 7 = 168$ ⑥ 168 cm^3 ⑦ $(12 + 5 + 4 + 5) \times 7 + (12 + 4) \times 3 \div 2 \times 2 = 230$ ⑧ 230 cm^2

3

⑨ $3 \times 3 \times 3.14 \times 3 \times \frac{1}{3} = 37.68$ $3 \times 3 \times 3.14 \times 4 = 113.04$ $37.68 + 113.04 = 150.72$ ⑩ 150.72 cm^3

21 ① Tables Representing Average and Variation

1

① total, number

② $(23 + 32 + 37 + 26 + 17) \div 5 = 27$

③ $(36 + 28 + 30 + 24 + 21 + 20) \div 6 = 26.5$

④ Group A

2

⑤ $(137.9 + 146.6 + 143.1 + 130.7 + 155.2) \div 5 = 142.7$
142.7 cm

⑥ $(148.9 + 129.7 + 145.5 + 138.2 + 151.4 + 147.3) \div 6 = 143.5$
143.5 cm

⑦ the girls

22 ① Tables Representing Average and Variation

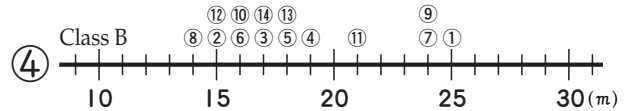
1

① 50, 51, 52, 53

② 47, 48, 49

③ 47, 48, 49, 50

2



⑤ class A

⑥ class B

Distance (m)	Number of people	Distance (m)	Number of people
More than or equal to Less than 10~15	2	More than or equal to Less than 10~15	1
15~20	5	15~20	9
20~25	5	20~25	3
25~30	3	25~30	1
Total	15	Total	14

23 ① Tables Representing Average and Variation



① Weight of Boys in Class A of the Sixth Grade

Weight (kg)	Number of people
More than or equal to 30~32	2
32~34	3
34~36	4
36~38	6
38~40	2
40~42	2
42~44	1
Total	20

② 36~38

③ $30\% (6 \div 20 = 0.3)$

④ 3 boys

⑤ $15\% (3 \div 20 = 0.15)$

⑥ 34~36

⑦ 12~15

24 ② Histograms

1

① Histogram

② 140~145

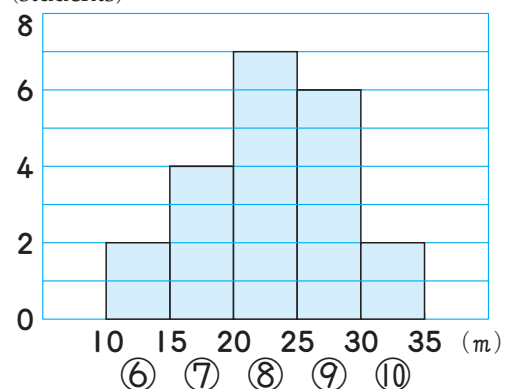
③ 15 students

④ 12 students

⑤ 39 students

2

Softball Throw Records for Girls in Dora's Class



25 ③ Cumulative Total**1**

① $3 + 2 + 3 + 2 + 2 = 12$

② 12 carpenters

③ $12 \div 5 = 2.4$

④ 2.4 carpenters

⑤ $12 \div 3 = 4$

⑥ 4 carpenters

2

⑦ $36 \div 20 = 1.8$

⑧ 1.8 students

3

⑨ $24.9 \times 30 = 747$

⑩ 747 people

26 ④ Whole and Part**◆**

① $306 \div 627 = 0.4880\dots$

② 48.8%

③ $9,010 \div 18,463 = 0.4880\dots$

④ 48.8%

⑤ $197,392 \div 404,046 = 0.4885\dots$

⑥ 48.9%

⑦ $841 \times 0.488 = 410.408$

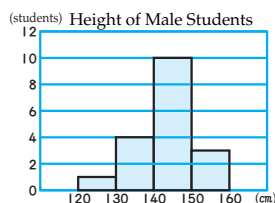
⑧ 410 students

27 12. How to Analyze Data**1**

①

Height of Male Students	
Height (cm)	Number of students (students)
120~130	1
130~140	4
140~150	10
150~160	3

②



③ 140~150

④ $13 \div 18 = 0.722\dots$

⑤ 72%

2

⑥ $889 \div 7 = 127$

⑦ 127 people

28 13. Units of Measurement**1**

① g

② kg

③ mm

④ m²**2**

⑤ cm

⑥ 100

⑦ km

3

⑧ 0.23 m

⑨ 0.4 cm

⑩ 2600 m

⑪ 0.32 km

⑫ 7500 mm

⑬ 65,000 cm

29 | 3. Units of Measurement

1

Length of a side	1 cm	1 m	② 10 m	100 m	1 km
Area of square	① 1 cm ²	1 m ²	1 a	③ 1 ha	④ 1 km ²

10,000 times (5) → 100 times (6) → 100 times (7) → 100 times (8) → 1,000,000 times (9)

2

⑧ cm²

⑨ km²

⑩ m²

3

⑪ 7600000 m²

⑫ 90000 cm²

⑬ 14000 m²

⑭ 4 a

⑮ 25 km²

30 | 3. Units of Measurement

1

Length of a side	1 cm	—	② 10 cm	1 m
Volume of cube	① 1 cm ³	100 cm ³	1000 cm ³	④ 1 m ³
	1 ml	1 dl	③ 1 l	1 kl

100 times (5) → 10 times (6) → 1000 times (7)

2

⑧ l

⑨ kl (m³)

⑩ ml (cm³)

3

⑪ 0.64 l

⑫ 2.8 kl

⑬ 0.9 m³

⑭ 470 l

⑮ 780 ml

31 | 3. Units of Measurement

1

Unit of volume	1 cm ³	100 cm ³	1000 cm ³	1 m ³
	1 ml	1 dl	1 l	1 kl
Weight of water corresponding to the volume above	① 1 g	② 100 g	③ 1 kg	④ 1 t

100 times (5) → 10 times (6) → 1000 times (7)

⑧ mg

2

⑨ kg

⑩ g

3

⑪ 5000 kg

⑫ 600 mg

⑬ 0.125 t

⑭ 1.06 kg

⑮ 0.39 kg

32 | 3. Units of Measurement

1

Kilo (k)	Hecto (h)	Deca (da)	Base unit	Deci (d)	Centi (c)	Milli (m)
① 1000	② 100	10 times	1	1/10	③ 1/100	④ 1/1000

2

	Kilo (k)	Hecto (h)	Deca (da)	Base unit	Deci (d)	Centi (c)	Milli (m)
Length	⑤ km			m		⑥ cm	⑦ mm
Volume	⑧ kl			l	⑨ dl		⑩ ml
Weight	⑪ kg			g			⑫ mg

3

⑬ 1000 ml

⑭ 1 m

⑮ 1000 kg

⑯ 0.1 l

⑰ 100 mm

⑱ 1 g

⑲ 1000 l

⑳ 10000 m

33 | 3. Units of Measurement**1**

- ① 0.047 km ② 3.2 mm
 ③ 0.304 km ④ 42195 m
 ⑤ 850 m^2 ⑥ 0.46 ha
 ⑦ 730 a ⑧ 19 ha
 ⑨ 4000 cm^3 ⑩ $8\text{ k}\ell$
 ⑪ $0.27\text{ }\ell$ ⑫ $53\text{ }\ell$
 ⑬ 7 g ⑭ 5 kg
 ⑮ 1.9 m^3 ⑯ 2.6 t
 ⑰ 100 g ⑱ $28\text{ d}\ell$

2

- ⑲ $120 \times 160 = 19200$
 $19200\text{ m}^2 = 192\text{ a}$
 ⑳ 192 a

34 | 3. Units of Measurement**1**

- ① km^2
 ② t
 ③ mg
 ④ mm
 ⑤ ℓ
 ⑥ m

2

- ⑦ $15 \times 20 \times 9 = 2700$
 $2700\text{ cm}^3 = 2.7\text{ }\ell$
 ⑧ 2.7 kg

3

- ⑨ $1.5 \times 3 \times 1.2 = 5.4$
 ⑩ 5.4 t

35 | 4. Various Graphs

- ① the number of rice farms
 ② production
 ③ 500,000 farms
 ④ 1,000,000 t
 ⑤ • the rice production becomes less than half during 1980 and 2005.
 • the number of rice farms has been decreasing since 1980.

36 | 4. Various Graphs

- ① 2 km
 ② 2 minutes
 ③ 7:02
 ④ 4 minutes
 ⑤ 32 minutes
 ⑥ 22 minutes
 ⑦ Station C
 ⑧ 2 minutes
 ⑨ Station B
 ⑩ 7:24

37 14. Various Graphs

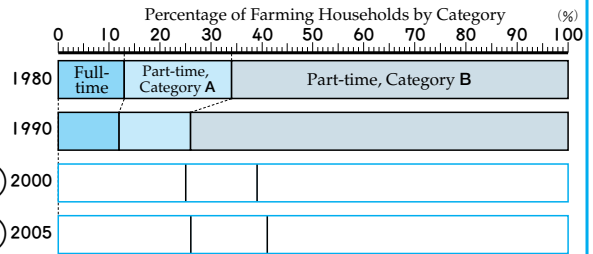


- ① does not include the point
- ② 600 yen
- ③ 600 yen
- ④ 1200 yen
- ⑤ 1800 yen
- ⑥ 3 hours,
3 hours and 30 minutes
- ⑦ 1, 200, 30

38 14. Various Graphs



- ① 14, 11, 75
- ② 15, 11, 74



- ③ 2000
- ④ 2005
- ⑤ (omission)

39 Check(5)

1

- ① 0.8, 1, 1.25, 1.05

2

- ② 16 girls
- ③ 4 girls

- ④ 25%

- ⑤ 11 ~ 14

3

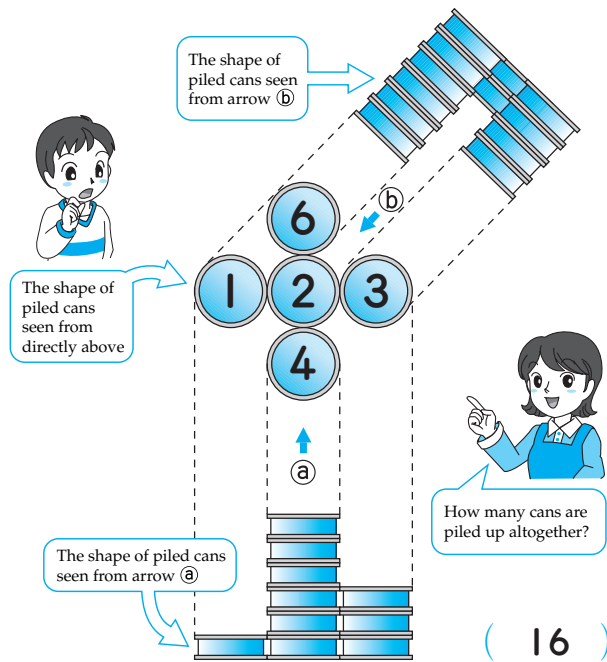
- ⑥ d

- ⑦ a

- ⑧ c

- ⑨ b

40 How many cans are there?



41 Numbers and Calculations ①**1**

- ① 3,210,300
② 21,405,000,000

2

- ③ 3, 4, 0, 7
④ 10, 1, 0.1, 0.01

3

- ⑤ 0.4 ⑥ 1.375 ⑦ 0.3125
⑧ $\frac{3}{5}$ ⑨ $1\frac{4}{5}$ ⑩ $2\frac{3}{4}$

4

- ⑪ 24, 48, 72
⑫ 1, 2, 3, 6, 9, 18
⑬ 1, 2, 3, 6
⑭ 9

42 Numbers and Calculations ②**1**

- ① $\frac{1}{3}$ ② $\frac{3}{4}$
③ $\frac{7}{15}$ ④ $\frac{5}{8}$

2

- ⑤ 6, 6 ⑥ 3, 10

3

- ⑦ $\frac{21}{36}, \frac{10}{36}$ ⑧ $\frac{6}{24}, \frac{20}{24}, \frac{9}{24}$

4

- ⑨ 21.2 ⑩ 74.4
⑪ 80.14 ⑫ 102.62
⑬ 26.5 ⑭ 33.9
⑮ 32.56 ⑯ 39.49

5

- ⑰ $325 \times 19 + 13 = 6188$
 $6188 \div 17 = 364$
⑱ 364

43 Numbers and Calculations ③**1**

- ① 2.852 ② 23.157 ③ 168.3
④ 0.63 ⑤ 126 ⑥ 27
⑦ 0.9 ⑧ 180

2

- ⑨ $37.9 \div 0.8 = 47 \text{ R}0.3$
⑩ 47 bags and 0.3kg left over

44 Numbers and Calculations ④**1**

- ① $\frac{13}{24}$ ② $1\frac{2}{3}$
③ $\frac{3}{20}$ ④ $\frac{3}{4}$
⑤ $\frac{3}{8}$ ⑥ $1\frac{3}{8}$
⑦ $\frac{4}{5}$ ⑧ 2

2

- ⑨ $80 \div (1 - \frac{2}{3}) = 80 \div \frac{1}{3}$
 $= 240$
⑩ 240 sheets

45 Numbers and Calculations ⑤

- 1**
- ① $\frac{2}{7}$ ② $\frac{3}{4}$ ③ $2\frac{1}{4}$ ④ $1\frac{1}{5}$
- 2**
- ⑤ $\frac{1}{4}$ ⑥ $3\frac{1}{2}$ ⑦ $\frac{4}{11}$ ⑧ $2\frac{12}{19}$
- 3**
- ⑨ $\frac{9}{14} \times \frac{7}{6} \times \frac{2}{3} = \frac{1}{2}$
- ⑩ $\frac{12}{5} \times \frac{7}{4} \times \frac{2}{7} = 1\frac{1}{5}$
- ⑪ $\frac{5}{6} \times \frac{9}{5} \times \frac{7}{12} \times \frac{3}{7} = \frac{3}{8}$
- 4**
- ⑫ $\frac{11}{15} + \frac{3}{5} \times \frac{7}{1} = 4\frac{14}{15}$
- ⑬ $\frac{8}{5} \times \frac{19}{8} \div \frac{19}{10} = 2$
- ⑭ $\frac{9}{25} \times \frac{7}{10} \div \frac{7}{50} = 1\frac{4}{5}$

46 Quantities and Measurements ①

- 1**
- ① 0.4 m ② 300 m
③ 3.4 a ④ 65 ha
⑤ 80 ha ⑥ 3 ℓ
⑦ 250 ℓ ⑧ 9700 kg
⑨ 0.4 t ⑩ 600 mg
⑪ 0.28 m² ⑫ 50000 cm³
⑬ 9 cm² ⑭ 2800 g
⑮ 1.2 kg ⑯ 53 g
⑰ 0.8 ℓ ⑱ 0.9 m³
- 2**
- ⑲ 12 t = 12000 kg
12000 ÷ 63 = 190 R30
- ⑳ 190 bags

47 Quantities and Measurements ②

- 1**
- ① A: $560 \div 4 = 140$
B: $620 \div 5 = 124$
- ② Train A
- 2**
- ③ Black stone : $300 \div 15 = 20$
White stone : $360 \div 20 = 18$
- ④ Black stone
- 3**
- ⑤ 5 km = 5000 m, $5000 \div 20 = 250$
- ⑥ 250 m / min
- ⑦ $62 \times 4 = 248$ ⑧ 248 km
- 4**
- ⑨ 12 km = 12000 m
 $12000 \div 240 = 50$,
 $8:00 + 50 = 8:50$
- ⑩ 8:50

48 Quantities and Measurements ③

- 1**
- ① $3 \times 4 \div 2 = 6$
- ② 6 cm²
- ③ $(4 + 7) \times 6 \div 2 = 33$
- ④ 33 cm²
- ⑤ $20 \times 20 + (20 \div 2) \times (20 \div 2) \times 3.14 \div 2 \times 2 = 714$
- ⑥ 714 m²
- 2**
- ⑦ $(5 + 3) \times 3.14 \div 2 + 5 \times 3.14 \div 2 + 3 \times 3.14 \div 2 = 25.12$
- ⑧ 25.12 cm
- ⑨ $4 \times 4 \times 3.14 \div 2 - (2.5 \times 2.5 \times 3.14 \div 2) - (1.5 \times 1.5 \times 3.14 \div 2) = 11.775$
- ⑩ 11.775 cm²

49 Quantities and Measurements ④**1**

① $8 \times 25 \times 16 = 3200$

② 3200 cm^3

③ $3.9 \times 3.6 \times \frac{1}{3} = 4.68$

④ 4.68 cm^3

⑤ $8 \times 8 \times 3.14 \times 15 = 3014.4$

⑥ 3014.4 cm^3

2

⑦ $2.5 \times 4 \div 2 \times 2 + (4.7 + 2.5 + 4) \times 5 = 66$

⑧ 66 cm^2

⑨ $(8 \times 6 \div 2 + 3 \times 3 \times 3 \times 3.14 \div 2) \times 2 = 76.26$

$(10 + 8 + 6 \times 3.14 \div 2) \times 5 = 137.1$

$76.26 + 137.1 = 213.36$

⑩ 213.36 cm^2

50 Geometric Figures ①**1**

① a, f, h

② g, h

③ h

④ b

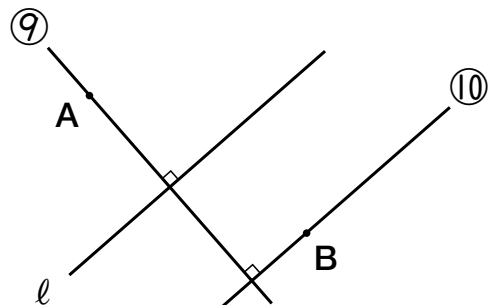
⑤ c, d

⑥ a, b, g, h

2

⑦ o, q

⑧ p

3**51** Geometric Figures ②**1**

① pentagonal prism

② Base : pentagon

Lateral surface : rectangle

③ height

2

④ triangular prism

⑤ sphere

⑥ hexagonal pyramid

⑦ cylinder

3

⑧ cone

⑨ $12 \times 2 \times 3.14 \div 4 = 18.84$

$18.84 \div 3.14 = 6$

⑩ 6 cm

52 Geometric Figures ③**1**

① 180°

② 60°

③ radius

2

④ 65°

⑤ 115°

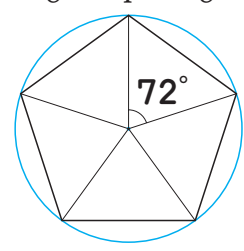
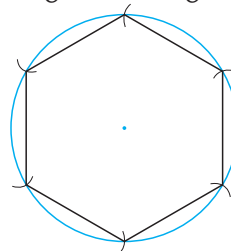
⑥ 60°

⑦ 45°

⑧ 60°

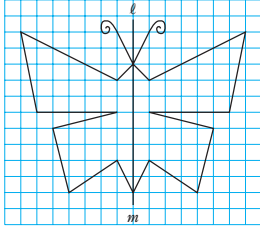
3

⑨ Regular hexagon ⑩ Regular pentagon

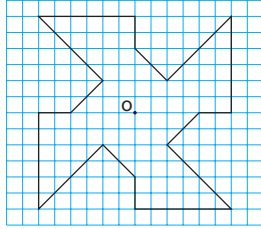
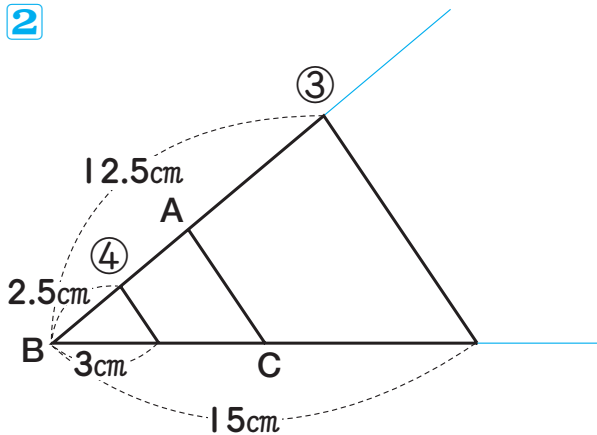


53 Geometric Figures ④**1**

①



②

**2****54 Quantitative Relations** ①**1**

① 2.2

② 131

③ 6.5

④ $\frac{25}{72}$ **2**⑤ $x + 240 \times 8$ ⑥ $8 \times 5 \times x$ **3**

⑦ 3 : 10

⑧ 5 : 16

4

⑨ (b), (c)

5⑩ $8 : 5 = x : 15$

$$5x = 8 \times 15$$

$$x = 8 \times 3$$

$$x = 24$$

$$24 \text{ km}^2$$

55 Quantitative Relations ②**1**

① 20.3%

② 87.5%

③ 150%

④ 225%

2

⑤ 40

⑥ 50

⑦ 27

⑧ 80

3⑨ $140 \times 0.95 = 133$

⑩ 133 people

4⑪ $14 \div \frac{7}{8} = 14 \times \frac{8}{7} = 16$ ⑫ 16 km^2 **56 Quantitative Relations** ③**1**① (X) $x + y = 24$ ② (O) $y = \pi x$ ③ (C) $x \times y = 20$ ($y = \frac{20}{x}$)**2**

x (m)	1	2	4	5	8	10	12
y (kg)	0.4	0.8	1.6	2	3.2	4	4.8

⑤ proportional relationship

⑥ $y = 0.4 \times x$ **3**⑦ $6 \times 15 = 90$

$$90 \div 10 = 9$$

⑧ 9 l per minute