

2024 General Admission Examination
period I , method A , version 2
(Arithmetic)
<Anser Sheet >

1	(1)		(2)	
	(3)		(4)	
	(5)		(6)	
2	(1)		(2)	
	(3)		(4)	
	(5)		(6)	
	(7)		(8)	
3	(1)		(2)	cm^2

4	(1)		(2)	cm^3
5	(1)		(2)	
6	(1)	m^2	(2)	cm^2
7	(1)		(2)	
8				

Examinee's Number					
Name					

1 Write the number that fits the box.

(1) $41 \times 41 + 7 \times 7 \times 7 = \boxed{}$

(2) $(1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9) \times (1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9) - 1 = \boxed{}$

(3) $\frac{22 \times 23 \times 24}{\boxed{}} = 2024$

(4) $3 \times 3 \times 3.141 - 3 \times 3 \times 3.14 = \boxed{}$

(5) $2 \times 2 + 4 \times 4 + 6 \times 6 + \dots + 22 \times 22 = \boxed{}$

(6) $100 \text{ m}^2 : 1 \text{ km}^2 = 1 : \boxed{}$

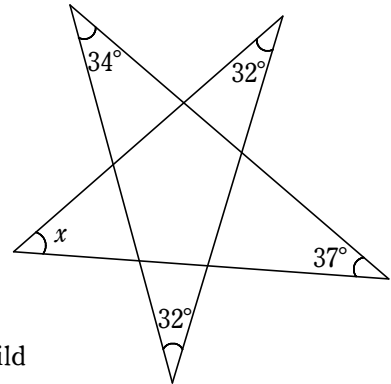
2 Write the number that fits the box.

(1) The path that a car travels at 60 km/h is three times as long as the path that the car travels at km/h in the same amount of time.

(2) In the figure on the right, angle x is degrees.

(3) 0.002% of 1,000,000 yen is yen.

(4) To leave home at 8:40 AM and arrive at the train station 2 km away at 9:20 AM, you must walk at km/h.



(5) If the sum of the ages of the mother and her child is 54 and the difference is 28, the child is years old.

(6) The length of a fan – shaped arc of radius 5 cm and central angle degrees is 6.28 cm. However, π is assumed to be 3.14.

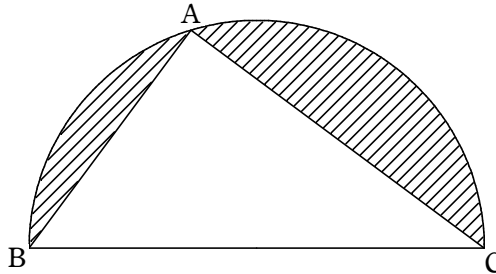
(7) The weight of salt dissolved in 300 g of 5% brine is times the weight of salt dissolved in 200 g of 6% brine.

(8) I read one quarter of a page book on the first day. A third of what remained, and then 14 pages on the second day. And then the remaining 42 pages on the third day.

3 (1) Choose all of the answer from ① through ⑤ that have a percentage of 8%.

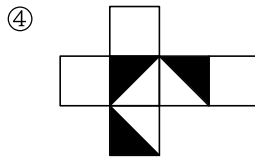
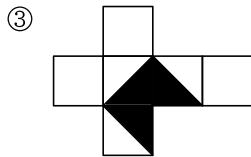
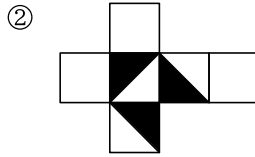
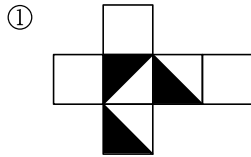
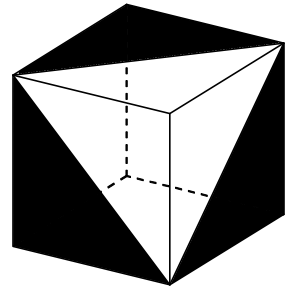
- ① Percentage of ¥80 based on ¥1,000
- ② Percentage of ¥8 based on ¥1,000
- ③ Percentage of ¥8 based on ¥100
- ④ Percentage of ¥0.8 based on ¥100
- ⑤ Percentage of ¥6.4 based on ¥80

(2) As shown in the figure below, there is a right triangle ABC inside the semicircle. The side lengths of triangle ABC are 6 cm, 8 cm and 10 cm. Find the area of the shaded area. However, assume that the π is 3.14.



4 Paint the face of the cube with color, as shown in the figure on the right.

(1) Choose the correct development of this cube from ① to ④.



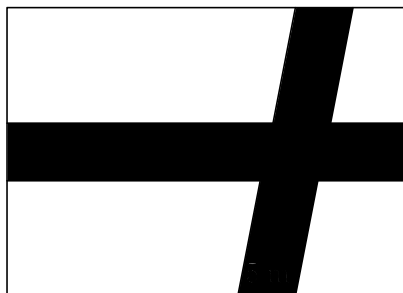
(2) Find the volume of this cube when the area of the colored part is 54 cm^2 .

5 When the greatest common divisor of two integers is 1, we say that they are "prime to each other". For example, 14 and 15 ARE prime to each other. 6 and 8 are NOT prime to each other.

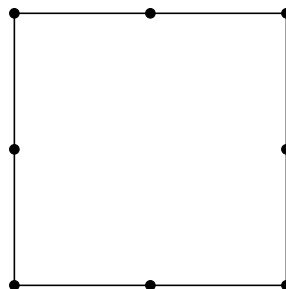
(1) How many integers from 1 to 9 ARE prime to 9 and to each other?

(2) How many integers from 1 to 81 are NOT prime to 81 and each other?

- 6 (1) As shown in the figure on the right, a rectangular lot 25 m long and 35 m wide is intersected by two roads 5 m wide. Find the area of the land other than the roads.



- (2) Select three of the eight points from a total of the vertices and the midpoints of the sides of a square of 6 cm on each side, as shown in the figure on the right. When these three points are connected to form a triangle, give the area of the triangle with the largest area.



7 Arrange the \circ s and \times s according to a certain rule, from left to right, as follows.

$\circ\circ\circ\times\times\circ\times\times\circ\circ\circ\times\times\circ\times\times\circ\circ\circ\times\times\circ\times\times\dots\dots$

- (1) When the 100th \times is lined up, how many \circ s and \times s are lined up in total?
- (2) When the total number of \circ s and \times s is 2024, how many \times 's are lined up in total such that there is a \circ on the right side?

8 Explain why when sides AD and BC are parallel in the figure below, triangle AOB and triangle DOC have equal areas.

