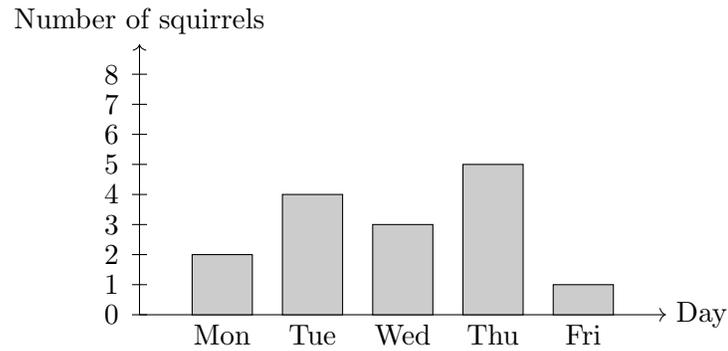


Instructions:

1. Do not open this booklet until you are told by your teacher to begin.
2. Materials: pencil, paper — no other materials. NO calculators!
3. You will have exactly **40 minutes** to work on the contest.
4. This contest has 9 questions in Part A, 9 questions in Part B, and 5 questions in Part C.
5. Parts A and B of this contest are multiple choice. Each of the questions in these parts is followed by five possible answers marked A, B, C, D, and E. Only one of these is correct. After making your choice, fill in the appropriate circle on the response form.
6. The correct answer to each question in Part C is an integer from 0 to 99, inclusive. Fill in your number using the appropriate circles on the response form. A one-digit answer (such as “4”) must be coded with a leading zero (“04”).
7. Scoring:
 - Each correct answer is worth:
 - 4 points in Part A,
 - 5 points in Part B,
 - 6 points in Part C.
 - Each unanswered question is worth 2 points.
 - Incorrect answers are worth 0 points.

Part A (4 points each)

1. The bar graph shows the number of squirrels that visited a park each day from Monday to Friday.



How many more squirrels visited on Thursday than on Monday?

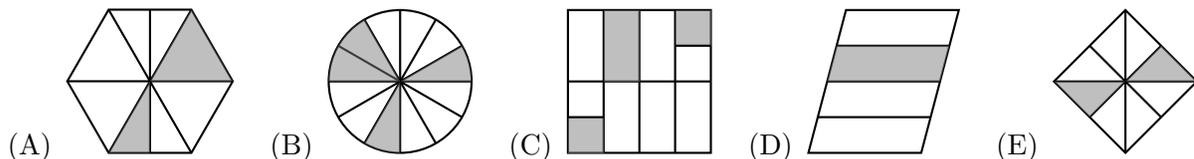
- (A) 2 (B) 4 (C) 3 (D) 5 (E) 6
2. Which of the following is the largest?
- (A) $(7 + 7 + 8) \times 0$
 (B) $(2 + 0 + 0) \times 6$
 (C) $2 \times 0 \times 2 \times 6$
 (D) $2 \times (0 + 1) \times 6$
 (E) $2 \times (0 + 2) \times 6$

3. Jack writes the words **SIX** and **SEVEN** over and over again, without any spaces:

SIXSEVENSIXSEVENSIXSEVEN...

What is the 67th letter Jack writes?

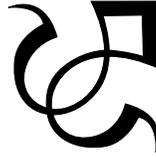
- (A) S (B) I (C) X (D) E (E) N
4. In which of the following is the shaded area **not** equal to $\frac{1}{4}$ of the shape?



5. How many lines of symmetry are there in total among the three ornaments shown below?



Ornament 1



Ornament 2



Ornament 3

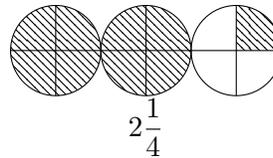
- (A) 0 (B) 1 (C) 3 (D) 4 (E) 2

6. What number does the duck represent in the equation below?

$$\frac{7}{8} = \frac{140}{\text{duck}}$$

- (A) 160 (B) 20 (C) 70 (D) 1120 (E) 8

7. How many $\frac{1}{8}$ are there in $2\frac{1}{4}$?



- (A) 10 (B) 14 (C) 20 (D) 22 (E) 18

8. What is the value of

$$\frac{1}{4} - \frac{1}{2} - \frac{1}{3} - \frac{1}{4} + \frac{1}{4} + \frac{1}{3} + \frac{1}{2} + \frac{1}{4}?$$

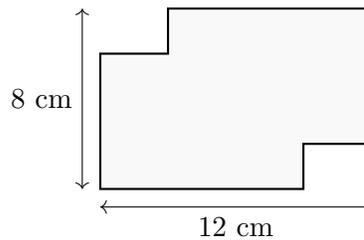
- (A) 0 (B) $\frac{1}{4}$ (C) $\frac{1}{3}$ (D) $\frac{1}{2}$ (E) $\frac{3}{4}$

9. If $A = 1$, $B = 2$, $C = 3$, and so on, what is the value of $A + N + N + I + E$?
- (A) 43 (B) 35 (C) 38 (D) 45 (E) 49

Part B (5 points each)

10. A number is called *skibbity* if the sum of its digits is 18 and it is divisible by 2, 7, and 9. Which of the following is a *skibbity* number?
- (A) 378 (B) 504 (C) 864 (D) 738 (E) 630

11. A rectangular sheet of paper is 12 cm long and 8 cm wide. A rectangle is cut off from the top-left corner, and another rectangle is cut off from the bottom-right corner, as shown.



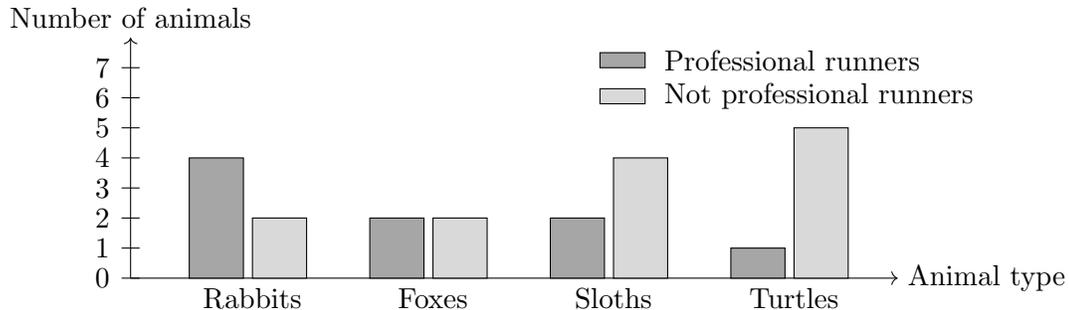
What is the perimeter of the resulting shape?

- (A) 20 cm (B) 40 cm (C) 35 cm (D) 45 cm (E) 96 cm
12. Find the value of
- $$444\,444\,444\,444\,444 \div 6.$$
- (A) 740 740 740 740 740
(B) 74 074 074 074 074
(C) 74 074 074 074
(D) 74 747 474 747 474
(E) 7 404 704 704 704

13. If tripling a number results in 15 more than doubling that number, then 21 less than double that number is

- (A) 12 (B) 18 (C) 24 (D) 9 (E) 27

14. For a sample of animals from Zootopia the bar graph below shows how many are professional runners and how many are not.

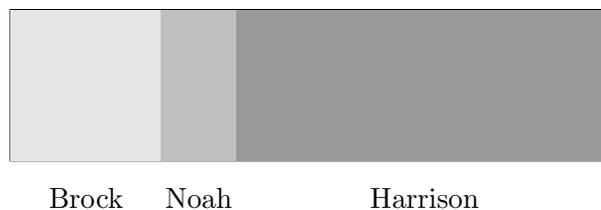


How many of the the following five statements are true?

- i) More rabbits than sloths are professional runners.
- ii) The fraction of sloths who are professional runners is less than the fraction of turtles who are professional runners.
- iii) The number of foxes who are professional runners is the same as the number of turtles who are professional runners.
- iv) Fewer than half of all the animals shown in the graph are professional runners.
- v) Exactly 8 animals in total are professional runners.

- (A) 2 (B) 0 (C) 1 (D) 3 (E) 4

15. A chocolate cake is shared by Brock, Noah, and Harrison. Brock eats exactly $\frac{1}{4}$ of the cake. Noah and Harrison eat the rest. Harrison eats 5 times as much cake as Noah, and his piece is 36 grams heavier than Brock's. How many grams is Harrison's piece?



- (A) 24 (B) 36 (C) 60 (D) 48 (E) 96

16. The table below shows a pattern. In each new row, we multiply by 3 again.

Row	Multiply	Product
1	3	3
2	3×3	9
3	$3 \times 3 \times 3$	27
4	$3 \times 3 \times 3 \times 3$	81
5	$3 \times 3 \times 3 \times 3 \times 3$	243
\vdots	\vdots	\vdots

The pattern continues in the same way, multiplying by 3 each time, all the way up to row 2026. What will be the *last digit* of the product in row 2026?

- (A) 1 (B) 9 (C) 3 (D) 5 (E) 7
17. One third of the rabbits play basketball, and the rest do not. Of the rabbits who do *not* play basketball, one quarter farm carrots. Of the rabbits who *do* play basketball, three quarters farm carrots.

What fraction of all the carrot-farming rabbits play basketball?

- (A) $\frac{1}{3}$ (B) $\frac{1}{4}$ (C) $\frac{2}{5}$ (D) $\frac{3}{4}$ (E) $\frac{3}{5}$
18. Among Alice (A), Bob (B), and Carol (C), one always tells the truth, one always lies, and one alternates between telling truths on one day and telling lies on the next. On three days in a row, they make the following statements:

1st day	2nd day	3rd day
A: Yesterday was not Friday. B: Yesterday was not Friday. C: Today is Monday.	A: Today is Tuesday. B: Yesterday was not Wednesday. C: Yesterday was Wednesday.	A: Tomorrow is Friday. B: Tomorrow is not Thursday. C: Tomorrow is not Friday.

Which day of the week was the first day?

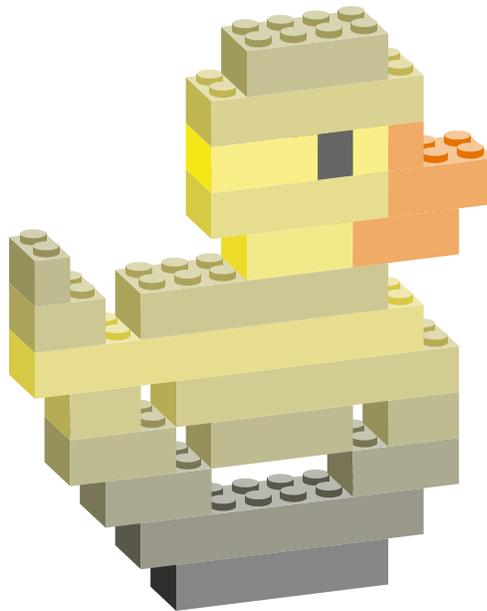
- (A) Monday (B) Wednesday (C) Thursday (D) Tuesday (E) None of the above

Part C (6 points each)

19. Braden builds the duck shown below entirely from *bricks* of different colours. A *brick* is a 2×1 piece (2 studs long and 1 stud wide), as shown here:



How many *bricks* are used to build the duck?



20. Alice starts with the number 26. In each step, she does do one of the following:

- adds 4 to her number,
- divides the number by 2 (if it is even), or
- divides the number by 3 (if it is divisible by 3).

What is the *minimum* number of steps she needs to reach 1?

21. Hannah the Rabbit has three different LEGO bricks:

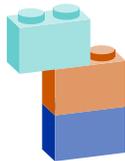


She wants to stack them into a structure that follows these rules:

- The structure has exactly three levels: bottom, middle, and top.
- A brick must sit on the brick below it, but may overhang by 1 stud (as shown):



- Each level contains exactly one brick, placed horizontally.
- All bricks must be placed in the same direction (parallel to each other): you are not allowed to turn a brick.



Valid



Not valid (one brick turned)

- If you can rotate one structure to get another (without moving bricks relative to each other), they are considered the *same* structure.

How many different valid structures can Hannah build?

22. Consider the following multiplication statement, where A , B , and C are digits.

$$\begin{array}{r}
 2 \ A \ 3 \ B \\
 \times \qquad \qquad \qquad C \ 6 \\
 \hline
 = \ 1 \ 8 \ 4 \ 9 \ 0 \ 8
 \end{array}$$

What is $A + B + C$?

23. How many squares can be made where the vertices come from points in a 4×4 grid?

