Released 2010 Achievement Test

Mathematics

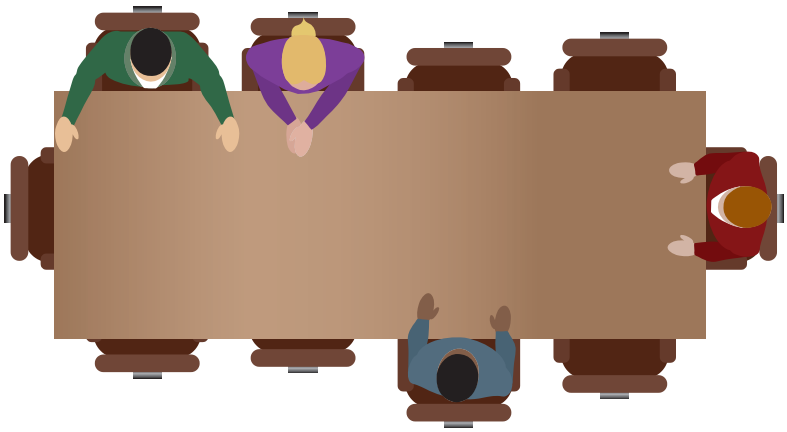
GRADE 6

Government of Alberta

Alberta

Freedom To Create. Spirit To Achieve.

Use the following information to answer question 1.



1. What is the ratio of chairs to people?

A. 2:5
B. 4:5
C. 5:2
D. 5:4

Use the following information to answer question 2.

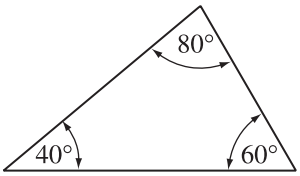
A chocolate bar has 10 equal sections.

2. What percentage is equivalent to $\frac{4}{5}$ of the chocolate bar?

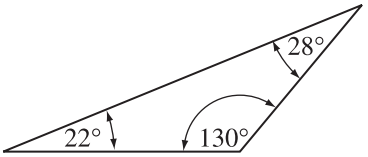
A. 4%
B. 8%
C. 40%
D. 80%

3. Which of the following triangles is an obtuse triangle?

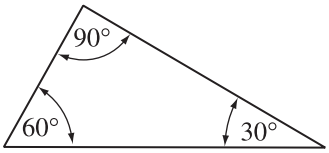
A.



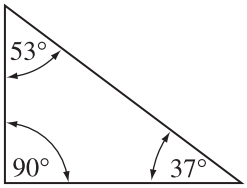
B.



C.



D.



Use the following information to answer numerical-response question 1.

$2 \times n + 3 = 113$

Numerical Response

1. The value of n in the equation above is _____.

(Record your answer in the numerical-response section on the answer sheet.)

Multiple-choice question 4 is not being released at this time.

Use the following information to answer question 5.

Bobbie uses the following rule to generate a list of numbers:

Rule: Multiply the previous number by 2 and then add 3.

5. If the first three numbers that Bobbie generates are 6, 15, and 33, then the next three numbers are

A. 69, 140, 282

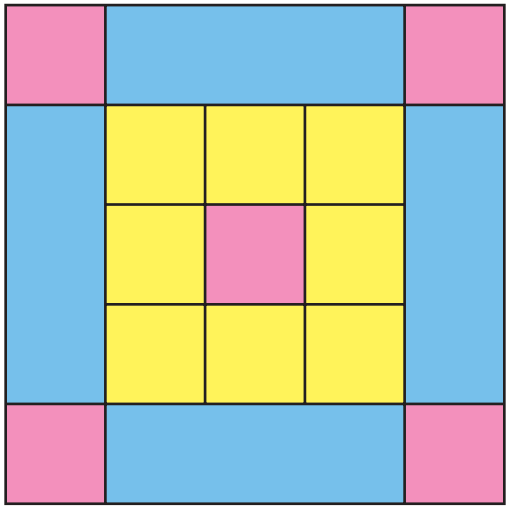
B. 69, 141, 285

C. 100, 202, 406

D. 100, 302, 906

Multiple-choice question 6 is not being released at this time.

Use the following information to answer numerical-response question 2.



Numerical Response

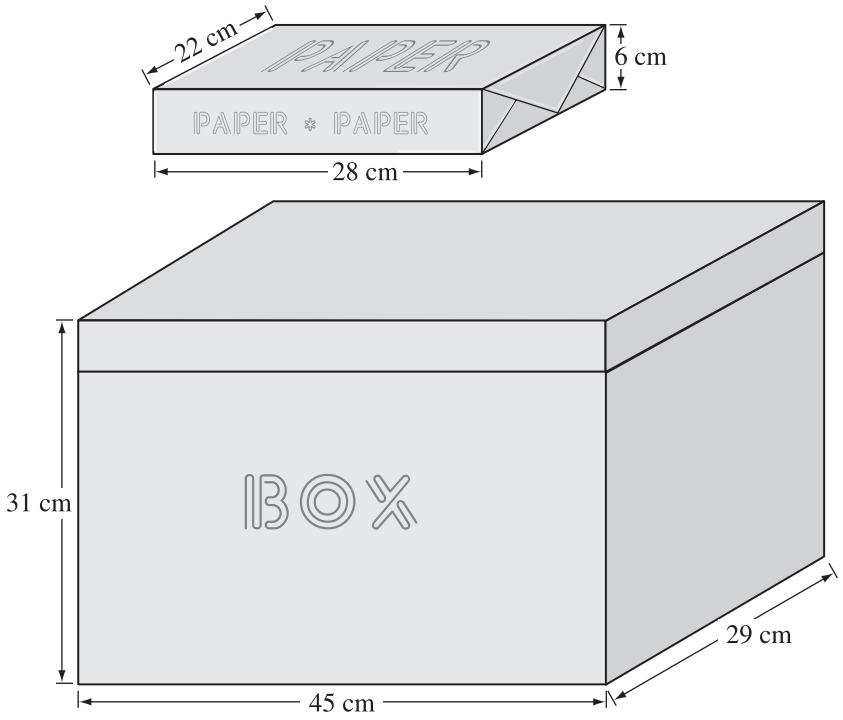
2. What percentage of the diagram shown above is shaded blue?

Answer: _____ **%**

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 7.

The dimensions of a package of paper and a box are shown below.



7. What is the **maximum** number of paper packages that could completely fit into the box?

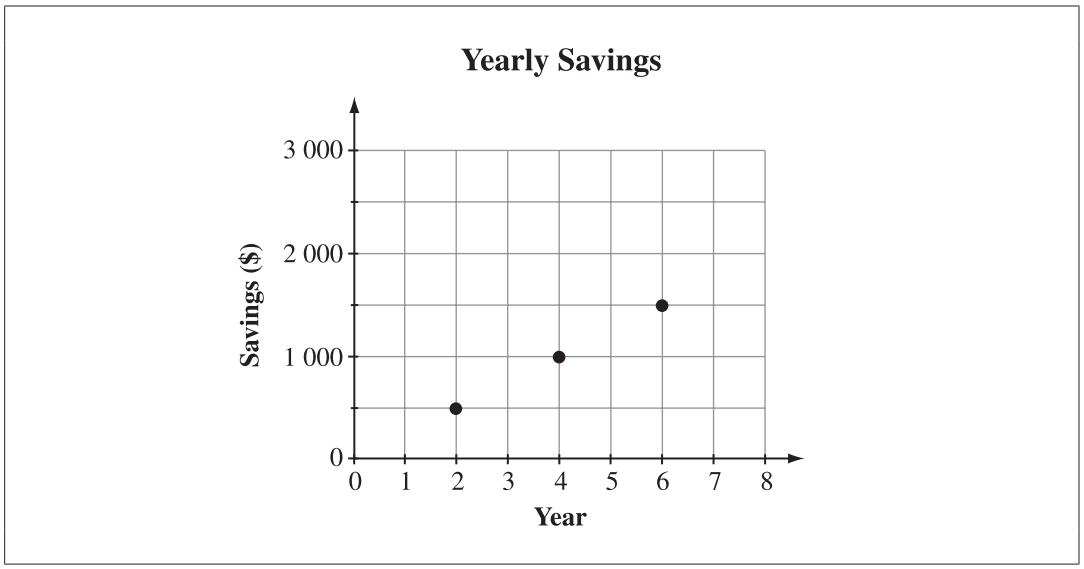
A. 8

B. 9

C. 10

D. 11

Use the following information to answer question 8.



8. If the pattern in the graph continues, then how much money would be saved in year 8?

A. $1 500

B. $1 750

C. $2 000

D. $2 250

---

9. Which of the following statements describes the relationship between zero and the numbers –6 and 2?

A. Zero is less than negative six and less than two.

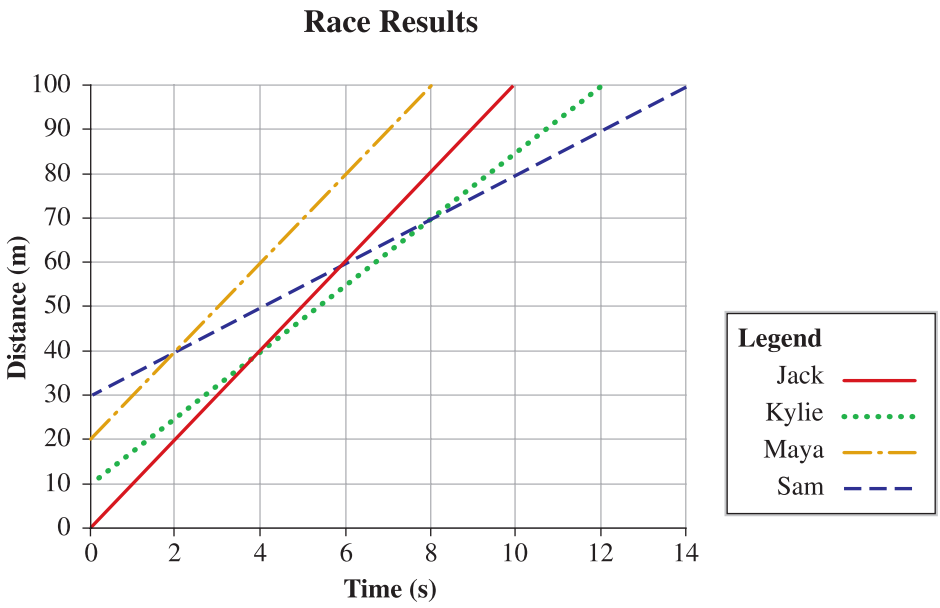
B. Zero is greater than negative six but less than two.

C. Zero is less than negative six but greater than two.

D. Zero is greater than negative six and greater than two.

Use the following information to answer question 10 and numerical-response 3.

The results of a race are shown on the graph below.



Note: Each person had a different starting point.

10. Which two people each ran 40 metres in 4 seconds?

A. Sam and Kylie
B. Kylie and Jack
C. Jack and Maya
D. Maya and Sam

Numerical Response

3. How many times during the race was Sam passed by another runner?

Answer: _____ time(s)

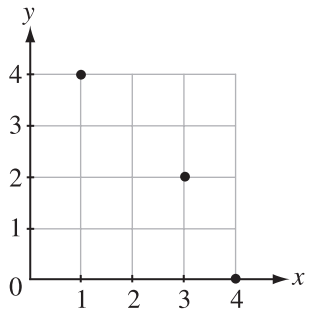
(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 11.

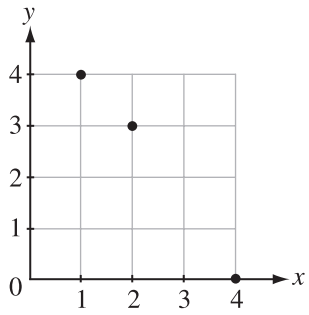
x	*y*
1	4
2	3
4	0

11. Which of the following graphs correctly displays the data in the table shown above?

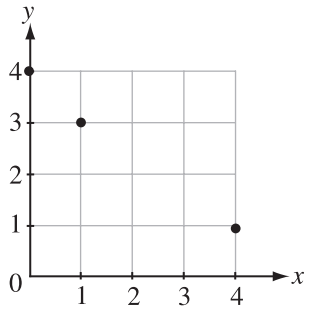
A.



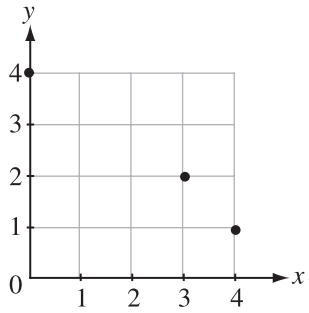
B.



C.



D.



Use the following information to answer question 12.

Input	Output
1	4
2	7
3	10
4	13

12. Which of the following statements describes the relationship between the input and the output in the table above?

A. Multiply the input by 4 to get the output.

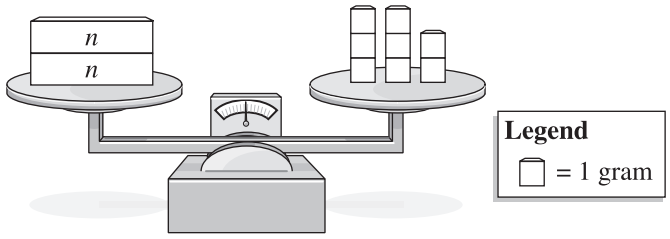
B. Double the input and add 2 to get the output.

C. Double the input and add 4 to get the output.

D. Multiply the input by 3 and add 1 to get the output.

Use the following information to answer question 13.

The following diagram shows a balanced scale. The mass of the blocks on each side of the scale is the same.



13. The mass of 1 block labelled by the letter ***n*** is

A. 2 grams

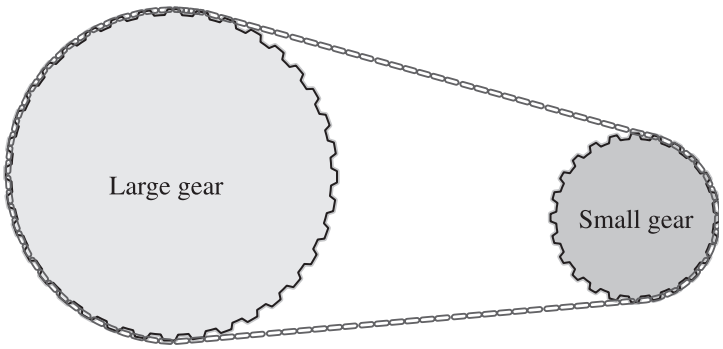
B. 4 grams

C. 6 grams

D. 8 grams

Use the following information to answer question 14.

The following diagram shows two gears that are connected by a chain. The large gear rotates 2 times for every 3 rotations of the small gear.



14. What is the total number of rotations of **both** gears when the large gear rotates 36 times?

A. 54 rotations

B. 60 rotations

C. 72 rotations

D. 90 rotations

Use the following information to answer question 15.

Hannah wants to know if Grade 6 students in her school prefer skiing to snowboarding.

15. Which of the following groups of students should Hannah survey?

A. Students on the Grade 6 ski team

B. All Grade 6 students in her school

C. Students on the Grade 6 snowboard team

D. Grade 6 students from the school's ski and snowboard club

Multiple-choice question 16 is not being released at this time.

Use the following information to answer numerical-response question 4.

A monthly bus pass costs $40.00, and a yearly bus pass costs $408.00.

Numerical Response

4. How many dollars would a person save by purchasing a yearly bus pass rather than 12 monthly passes?

Answer: _____ dollars

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 17.

Ben is thinking about a certain integer that is:

- less than –5
- greater than –12
- closer to –12 than to –5

17. Which of the following integers could Ben be thinking about?

A. -4

B. -6

C. -10

D. -14

Use the following information to answer question 18.

A bag contains 300 marbles of which 24% are green.

18. Which of the following equations can be used to find the total number, n, of green marbles?

A. $\frac{24}{100} = \frac{n}{300}$

B. $\frac{300}{n} = \frac{24}{100}$

C. $\frac{24}{100} = \frac{200}{n}$

D. $\frac{100}{200} = \frac{n}{24}$

Use the following information to answer question 19.

Left Side	Right Side
12 + 6 = 22 – 4	

19. Which of the following operations would preserve equality in the equation shown above?

A. Subtract 4 from the left side and add 4 to the right side

B. Subtract 6 from the left side and add 4 to the right side

C. Subtract 6 from the left side and subtract 6 from the right side

D. Subtract 4 from the left side and subtract 6 from the right side

---

Use the following information to answer numerical-response question 5.

John spends $3.65 on 1 bottle of juice, 2 muffins, 1 package of gum, and 3 sour treats at a convenience store. The chart below shows the cost of each item.

Item	Cost
Bottle of juice	$1.25
Muffin	**?**
Package of gum	$0.55
Sour treat	$0.05

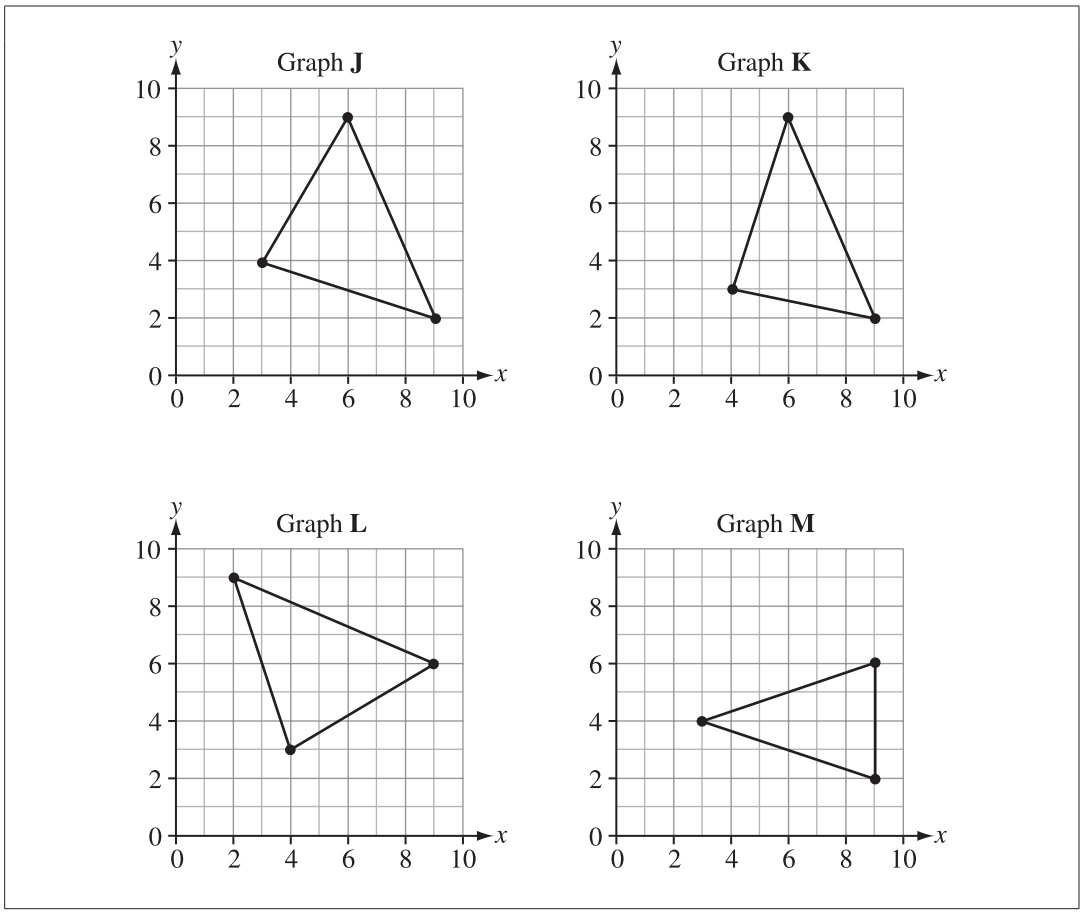
Numerical Response

5. What is the cost of **1** muffin?

Answer: $ _____

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 20.



20. Which graph shown above has a triangle with the coordinates (3, 4), (9, 2), and (6, 9) at its vertices?

A. Graph J

B. Graph K

C. Graph L

D. Graph M

Use the following information to answer question 21.

Kerry randomly flips a coin 10 times. She records the number of times the coin lands on heads or tails in one of the tally charts shown below.

Tally chart 1

Heads	Tails
𝍸	𝍸

Tally chart 2

Heads	Tails
𝍸	𝍸
| | |	| |

Tally chart 3

Heads	Tails
	𝍸
	𝍸

Tally chart 4

Heads	Tails
𝍸	𝍸
|	| | | |

21. Which tally chart represents the theoretical probability of Kerry's results?

A. Tally chart 1

B. Tally chart 2

C. Tally chart 3

D. Tally chart 4

Use the following information to answer numerical-response question 6.

Kate saves $\frac{1}{2}$ of the $10.00 she receives each week from her parents. She is going to use her savings to buy a camera that costs a total of $196.00 (including the Goods and Services Tax).

Numerical Response

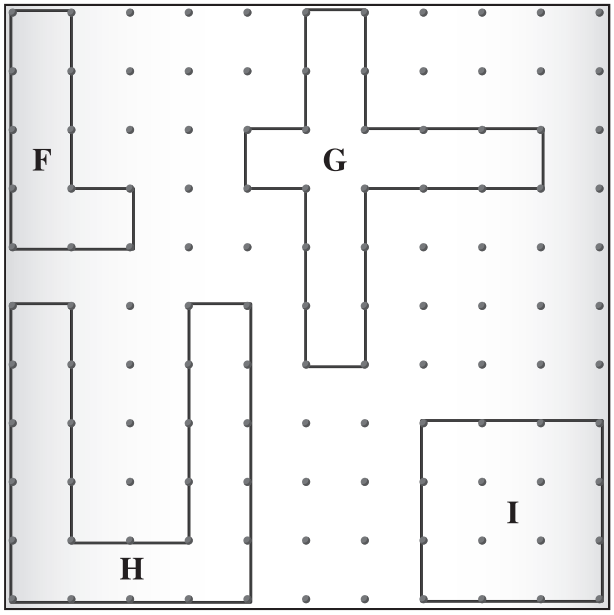
6. How many weeks will it take Kate to save enough money to buy the camera?

Answer: _____ weeks

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 22.

Four shapes were created by placing elastic bands around pegs on a geoboard, as shown below.



22. Which shape contains 10% of the geoboard's total area?

A. Shape F

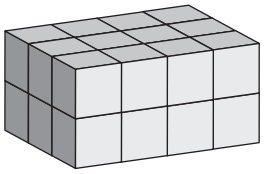
B. Shape G

C. Shape H

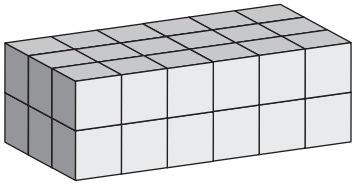
D. Shape I

23. Which of the following rectangular prisms has the **greatest** volume?

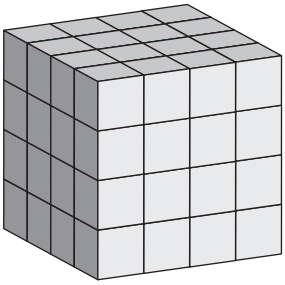
A.



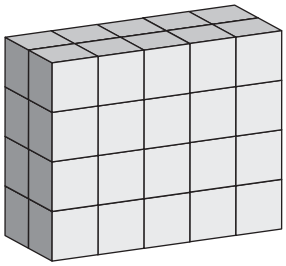
B.



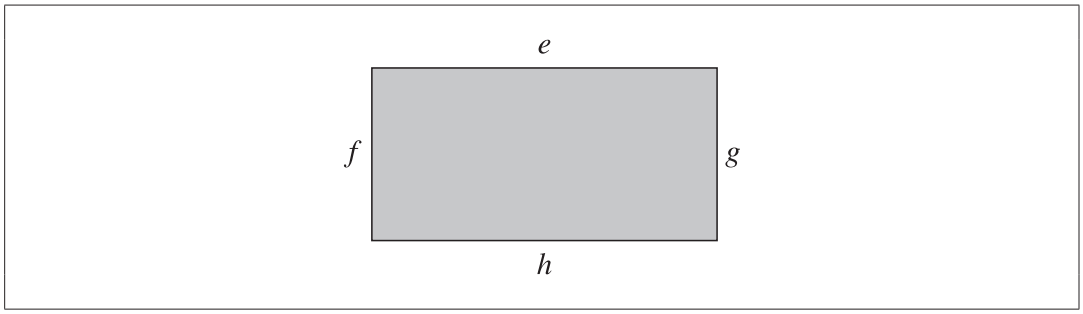
C.



D.



Use the following information to answer question 24.

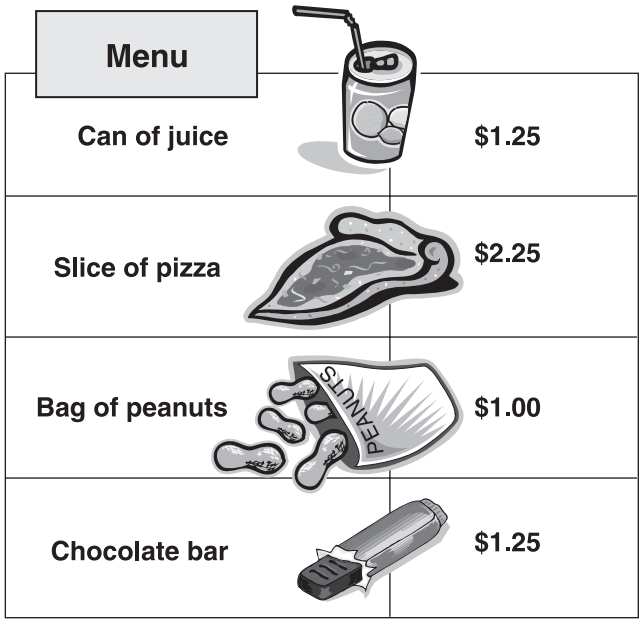


24. Which of the following rows represents a formula for finding the perimeter and area of the rectangle above?

Row	Perimeter	Area
A.	$e + f + g + h$	$g \times h$
B.	$g \times h$	$e + f + g + h$
C.	$(f + g) + (e + h)$	$(f + g) \times (e + h)$
D.	$(f + g) \times (e + h)$	$(f + g) + (e + h)$

Use the following information to answer question 25.

The menu below shows the items sold at a concession and the cost of each item.



25. If a student purchased 1 can of juice, 2 slices of pizza, 1 bag of peanuts, and 2 chocolate bars using a $20.00 bill, then her change was

A. $9.25

B. $9.75

C. $10.25

D. $10.75

Use the following information to answer question 26.

A table of values is shown below.

x	1	2	3	4	5
y	3	5	7	9	11

26. Which of the following equations represents the relationship between the x and y shown in the table above?

A. $y = x$

B. $y = x + 1$

C. $y = 2x$

D. $y = 2x + 1$

Use the following information to answer numerical-response question 7.

Equation 1 $2 \times \square = 6$

Equation 2 $3 \times \square =$ **?**

Equation 3 $4 \times \square = 12$

Numerical Response

7. If the value of $\square$ is the same for all three equations, then the product in **Equation 2** is _____.

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 27.

Shannon makes 6 grilled-cheese sandwiches for her 4 children. Her oldest child eats 3 sandwiches, and her youngest child eats only $\frac{1}{4}$ of a sandwich.

27. How many sandwiches do Shannon's other 2 children eat if all the sandwiches are eaten?

A. $2\frac{3}{4}$

B. $2\frac{1}{4}$

C. $1\frac{3}{4}$

D. $1\frac{1}{4}$

Use the following information to answer question 28.

A restaurant charges \$60 per hour and \$10 per person for parties.

28. Which of the following equations can be used to determine the total cost for a 3-hour party for 35 people?

A. Total cost = $(60 \times 35) \times (10 \times 3)$

B. Total cost = $(60 \times 35) + (10 \times 3)$

C. Total cost = $(60 \times 3) \times (10 \times 35)$

D. Total cost = $(60 \times 3) + (10 \times 35)$

Use the following information to answer question 29.

Each day Jessie deposits money into her piggy bank according to the pattern shown in the chart below.

Day	Amount Deposited
1	$1.00
2	$2.00
3	$3.00
4	$4.00

29. Jessie continues to deposit money into her piggy bank according to the pattern shown in the chart above. How many days does it take her to deposit a **total** of $21.00?

A. 4 days

B. 5 days

C. 6 days

D. 7 days

Use the following information to answer question 30.

Louise charges $5 per hour for babysitting one child and $1.25 per hour for each additional child.

30. How much would Louise charge to babysit 4 children for 6 hours?

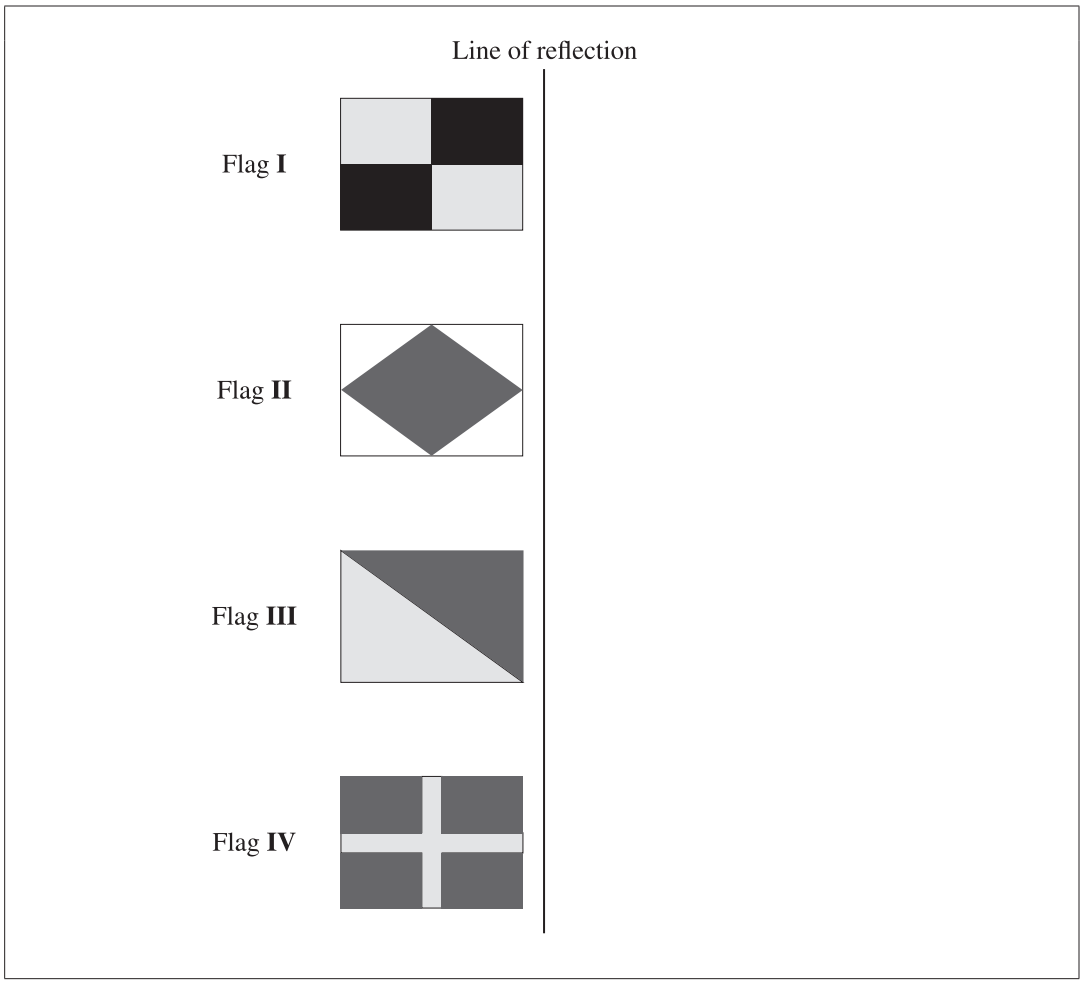
A. $30.00

B. $37.50

C. $52.50

D. $60.00

Use the following information to answer question 31.



31. Which two flags create identical images when reflected across the line of reflection shown above?

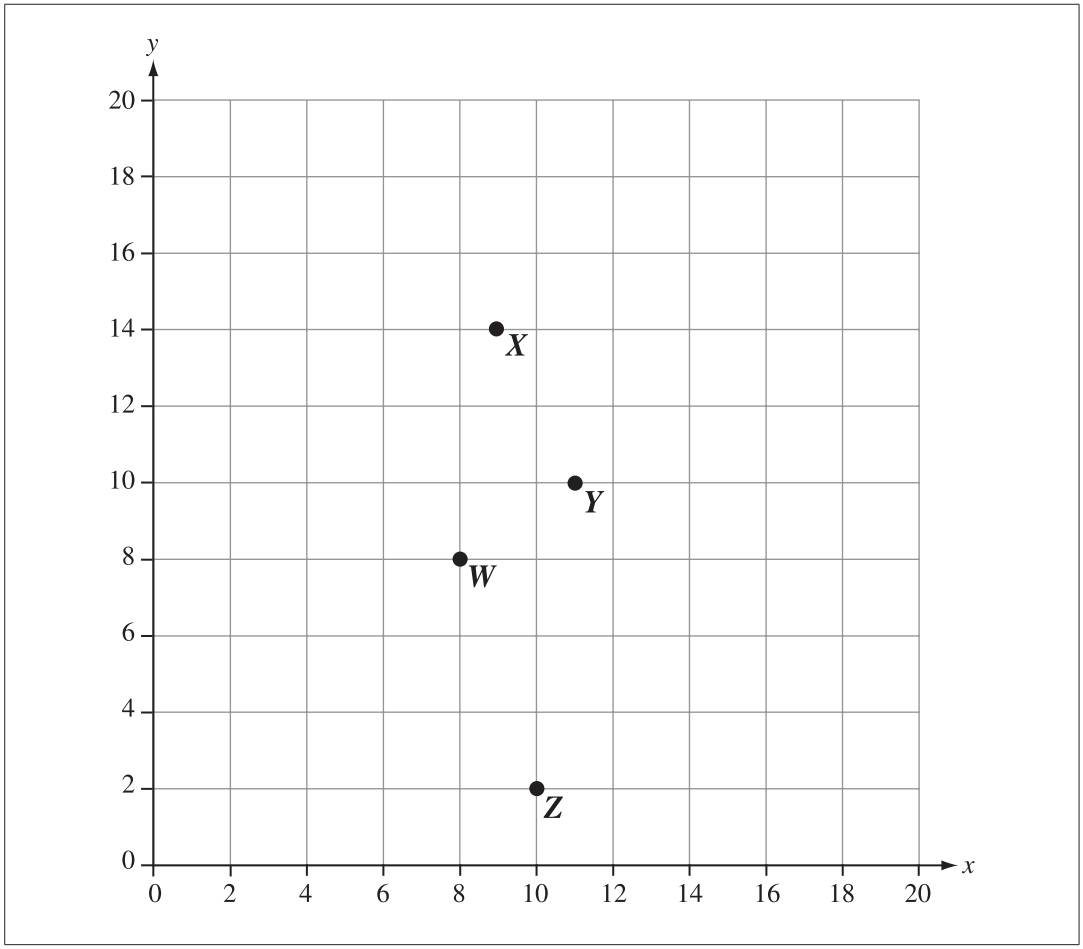
A. Flag I and Flag III

B. Flag I and Flag IV

C. Flag II and Flag III

D. Flag II and Flag IV

Use the following graph to answer question 32.



32. If the coordinates (5, 4) and (13, 4) are plotted on the graph above, then which of the points labelled on the graph could be used as a third point to create an isosceles triangle?

A. *W*

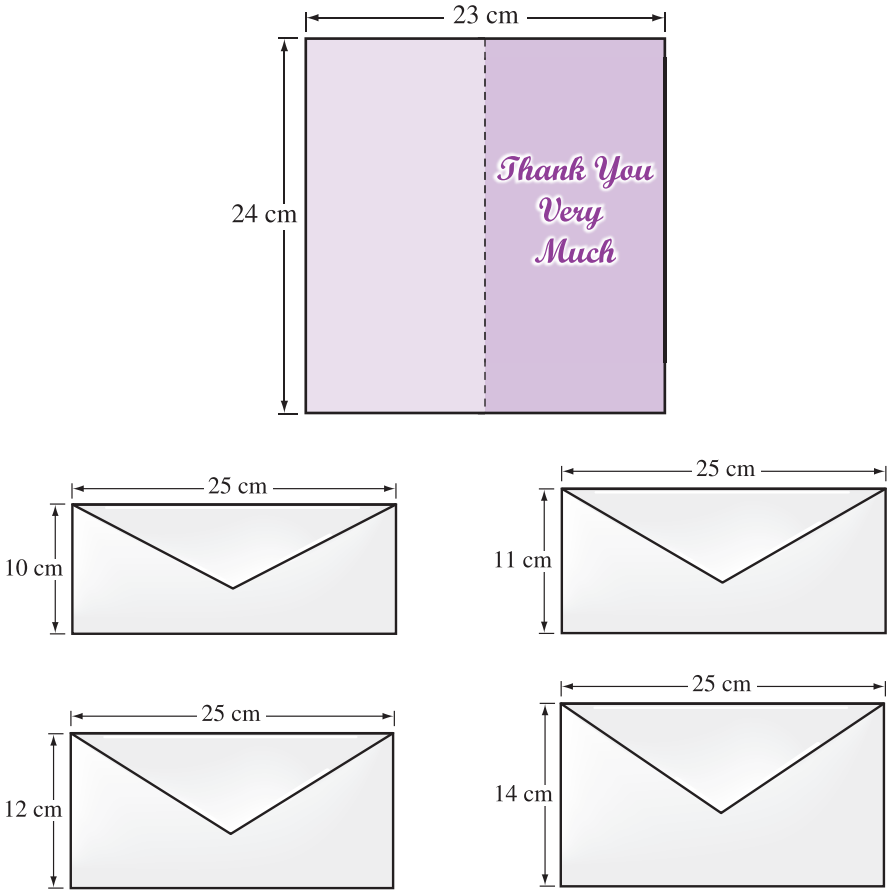
B. *X*

C. *Y*

D. *Z*

Use the following information to answer numerical-response question 8.

A thank-you card and four envelopes are shown below.



Note: The diagrams shown above are not drawn to scale.

Numerical Response

8. How many of the envelopes are large enough to contain the thank-you card if the card is folded in half along the dotted line shown above?

Answer: _____ envelope(s)

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 33.

Margo uses integers to represent floor levels in a building. Starting at ground level (floor 0), an elevator travels in the following directions:

- down 5 floors
- up 1 floor
- up 7 floors
- down 8 floors

33. If floors that are below ground level are represented by negative integers, then on which floor does the elevator make its **last** stop?

A. –5

B. –4

C. –3

D. –2

Use the following information to answer question 34.

Josh has 30 hockey cards. He keeps 10 cards for himself and gives 5 cards to his sister. Josh then shares the remaining cards equally among 5 friends.

34. How many cards does Josh give to each friend?

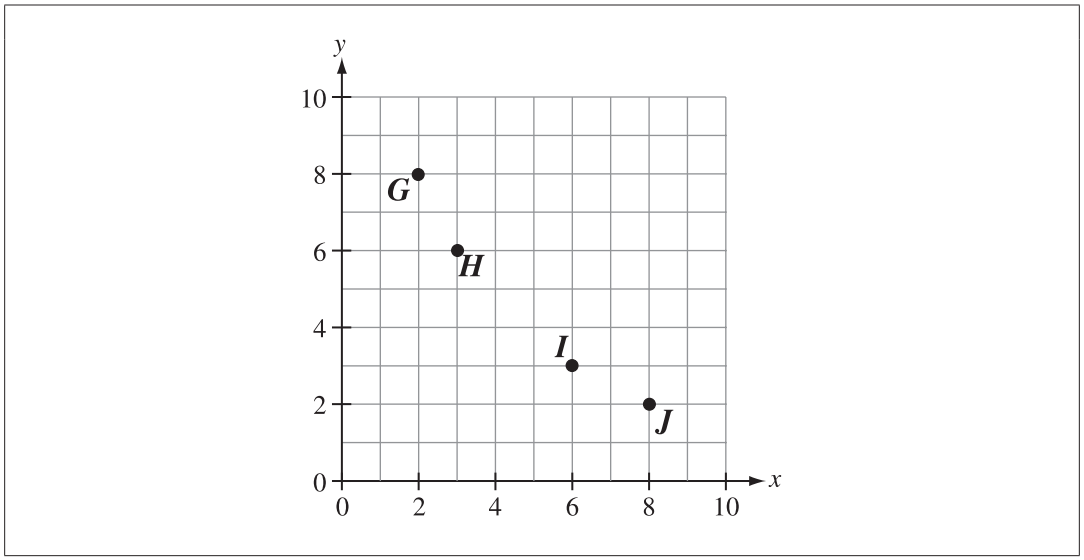
A. 2

B. 3

C. 4

D. 5

Use the following information to answer question 35.



35. In the graph above, which letters are located at the coordinate positions (2, 8) and (6, 3)?

A. *G* and *H*

B. *G* and *I*

C. *H* and *J*

D. *I* and *J*

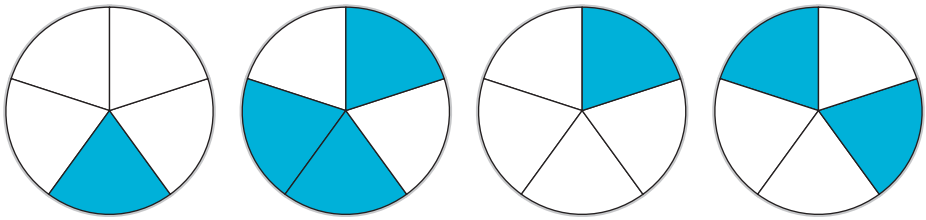
---

36. Which row shows the fraction form and the decimal form of 7%?

Row	Fraction Form	Decimal Form
A.	$\frac{7}{10}$	0.07
B.	$\frac{7}{10}$	0.7
C.	$\frac{7}{100}$	0.07
D.	$\frac{7}{100}$	0.7

Use the following information to answer question 37.

The circles shown below have sections of equal size.



37. How many new circles can be made using only the blue sections?

A. $1\frac{2}{5}$

B. $1\frac{5}{2}$

C. $1\frac{5}{7}$

D. $1\frac{7}{5}$

---

38. The number 1 100 010 101.001 can be written as

A. one million ten thousand one hundred one and one thousandth

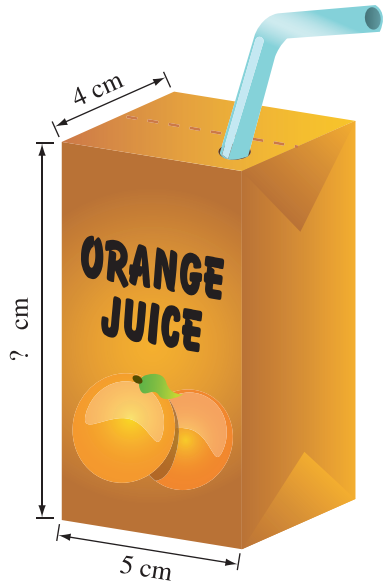
B. one million one hundred thousand one hundred one and one hundredth

C. one billion ten million one thousand one hundred one and one hundredth

D. one billion one hundred million ten thousand one hundred one and one thousandth

Use the following information to answer numerical-response question 9.

The container of orange juice shown below has a volume of 200 cm^3.

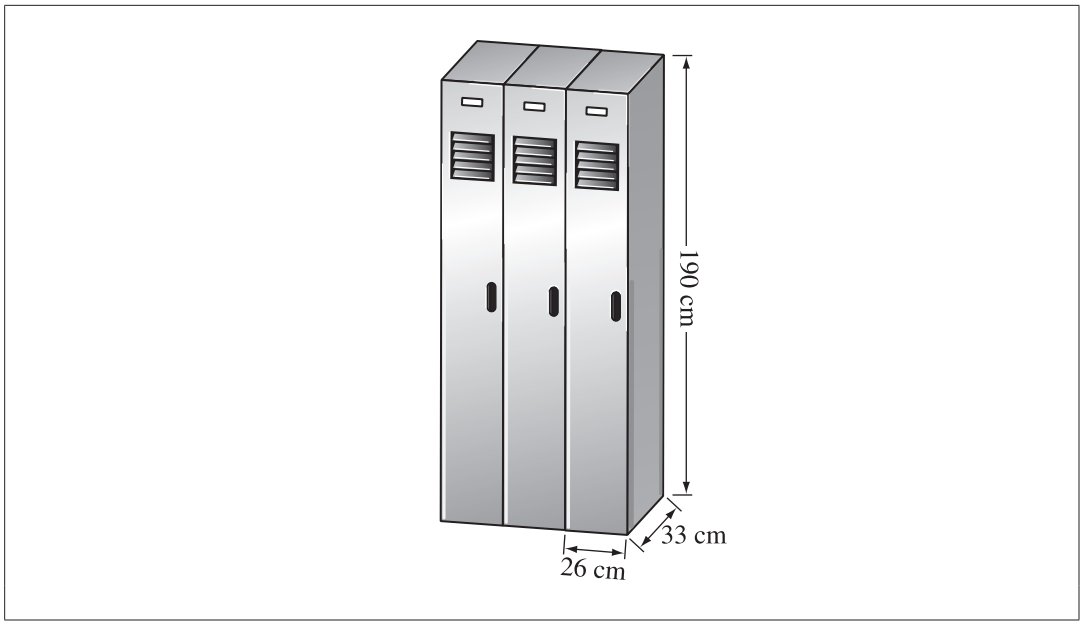


Numerical Response

9. The container of orange juice has a height of _____ cm.

(Record your answer in the numerical-response section on the answer sheet.)

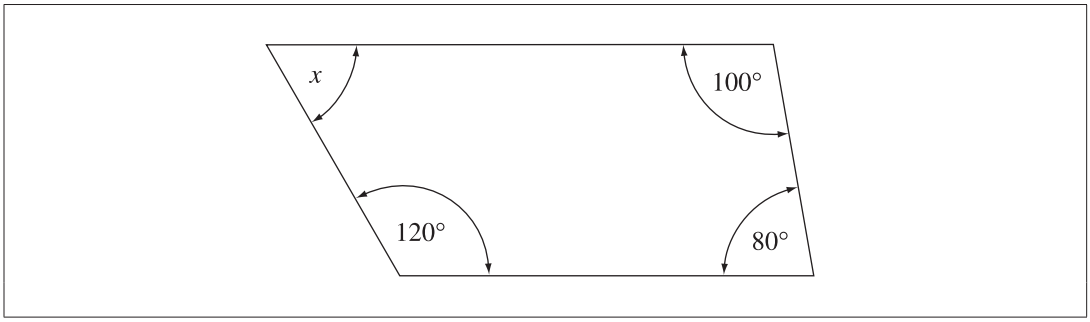
Use the following information to answer question 39.



39. Which of the following expressions can be used to find the total volume of the 3 lockers?

A. (26 cm × 33 cm × 190 cm) × 3
B. (26 cm + 33 cm + 190 cm) × 3
C. (26 cm × 33 cm × 190 cm) ÷ 3
D. (26 cm + 33 cm + 190 cm) ÷ 3

Use the following information to answer numerical-response question 10.



Numerical Response

10. The measure of x in the diagram above is _____ degrees.

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 40.

A teacher puts the following names in a bag to randomly select teams.

Boys' Names
Ivan
Mo
Carl
Ken
Bob
Sal
Paul
Frank

Girls' Names
Jane
Sarah
Nicole
Janet
Ashley
Stacey

40. The first 3 names that the teacher picks at random are Mo, Janet, and Ashley. If these 3 names are **not** put back in the bag, then what is the probability that the next name drawn will be a boy's?

A. $\frac{8}{14}$

B. $\frac{7}{14}$

C. $\frac{7}{11}$

D. $\frac{1}{6}$