

Released 2008
Achievement Test

Mathematics

GRADE

6

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This document contains released items from the 2008 Grade 6 English Mathematics Achievement Test.

Released test items, which contained approximately 25% of the total number of test items from previously secured achievement tests, were mailed to school administrators each fall from 2004 to 2006 and have been made available to teachers in only print form because of copyright limitations. **Every second year**, as of the fall of 2007, **a complete or partial test** for all achievement test subjects and grades (except grades 6 and 9 Mathematics; grades 3, 6, and 9 Français/French Language Arts; and Grade 9 Knowledge and Employability courses) will be **mailed** to school administrators in conjunction with the Assessment Highlights report for that year. The parts of those tests that are released in print form for which electronic copyright permission is received will subsequently be posted on the Alberta Education website. A test blueprint and an answer key that includes the difficulty, reporting category, test section, and item description for each test item will also be included. These materials, along with the Program of Studies and Subject Bulletin, provide information that can be used to inform instructional practice.

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The Alberta Education Internet address is education.alberta.ca.

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2008 Achievement Test Released Items

The items presented in this document are from previously secured items that appeared on the Part A and Part B Grade 6 Mathematics Achievement Test in 2008. These items are released by Alberta Education.

Grade 6 Mathematics Achievement Test Released Items

2008

Part A

1. What is $175 \div 25$?
 - A. 7
 - B. 8
 - C. 9
 - D. 10

2. What number when added to 0.09 would make a sum of 1.11?
 - A. 1.002
 - B. 1.001
 - C. 1.01
 - D. 1.02

3. What is $4 \times 25 \times 9$?
 - A. 900
 - B. 360
 - C. 225
 - D. 100

4. If $\square - 63.55 = 106.45$, then the value of \square is
 - A. 82.90
 - B. 83.90
 - C. 170.00
 - D. 180.00

5. What is $103.4 + 27.6 + 0.39$?
 - A. 130.49
 - B. 130.9
 - C. 131.39
 - D. 134.9

6. Which of the following numbers is not a prime number and not a composite number?

- A. 1
- B. 2
- C. 3
- D. 4

7. **Item not released.**

8. Which number when multiplied by 0.01 equals 1?

- A. 10
- B. 100
- C. 1 000
- D. 10 000

9. What is $180 - 54.65$?

- A. 125.35
- B. 126.45
- C. 132.65
- D. 133.45

10. If Sunny makes \$20 for each hour he works, then how many hours must Sunny work to make \$2 000?

- A. 100
- B. 400
- C. 1 000
- D. 40 000

11. The ratio 3 to 4 is equivalent to
- A. 30 to 20
 - B. 20 to 30
 - C. 16 to 12
 - D. 12 to 16
12. **Item not released.**
13. Emilio estimates that 600 trucks pass his house in 1 day. If this pattern continues, then how many trucks would he expect to pass his house in 30 days?
- A. 1 800
 - B. 6 300
 - C. 18 000
 - D. 63 000
14. **Item not released.**
15. The number that represents 8 millions, 70 thousands, 2 tens, and 3 ones is
- A. 8 007 203
 - B. 8 070 023
 - C. 8 070 230
 - D. 8 700 023
16. **Item not released.**
17. The sum of three numbers is 180. The first two numbers are 35 and 75. What is the third number?
- A. 70
 - B. 80
 - C. 100
 - D. 110

18. Item not released.

19. Which of the following rows represents the arithmetic operations that are necessary to complete the equation $30 \square 15 \diamond 5 = 40$?

Row	\square	\diamond
A.	+	-
B.	-	+
C.	\times	\div
D.	\div	\times

Items 20 to 22 not released.

23. Which of the following fractions is equivalent to 25%?

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

B. $\frac{3}{4}$

C. $\frac{1}{25}$

D. $\frac{4}{25}$

24. Item not released.

25. A patient took 3 mL of medicine 4 times a day for 6 days. How much medicine did the patient take altogether?

A. 72 mL

B. 24 mL

C. 18 mL

D. 12 mL

Items 26 and 27 not released.

28. Sam wants to buy a book that costs \$8.50. If Sam has \$4.90, then how much more money does he need to buy the book?
- A. \$3.40
 - B. \$3.60
 - C. \$4.40
 - D. \$4.60
29. Which of the following pairs of numbers can be used to calculate a product of 28?
- A. 2 and 56
 - B. 2 and 13
 - C. 3 and 9
 - D. 4 and 7
30. **Item not released.**

**Grade 6 Mathematics Achievement Test
Released Items**

2008

Part B

1. The number 1 010 010 101.01 can be written as
 - A. one million ten thousand one hundred one and one hundredth
 - B. one million one hundred thousand one hundred one and one tenth
 - C. one billion one million one thousand one hundred one and one tenth
 - D. one billion ten million ten thousand one hundred one and one hundredth

2. To estimate the product of 631 and 713, Angela multiplies 600×700 . Is Angela's estimate more or less than the actual product and why?
 - A. Less, because she rounded both numbers down
 - B. Less, because she rounded both numbers up
 - C. More, because she rounded both numbers down
 - D. More, because she rounded both numbers up

Items 3 and 4 not released.

Use the following information to answer question 5.

The following stem-and-leaf plot shows the heights of 31 soccer players.

Soccer Player Heights (cm)

19	1 2 2 3 4 4 6
18	2 3 4 6 7 8 8 9
17	1 3 3 3 4 5 8 8 9 9
16	0 2 2 8 9 9

5. The difference in height between the tallest player and the shortest player is
 - A. 36 cm
 - B. 31 cm
 - C. 27 cm
 - D. 22 cm

Use the following table to answer question 6.

Movie Admission Prices	
Year	Adult Ticket
2001	\$12.25
2002	\$12.75
2003	\$13.25
2004	\$13.75

6. If the pattern shown in the table above continues, then in which year will the price of one adult ticket have increased to \$15.25?
- A. 2007
 - B. 2008
 - C. 2009
 - D. 2010
-

Use the following information to answer question 7.

A class of between 20 and 28 students went on a field trip. They tried to organize themselves into groups of 2, 3, 4, or 5, but they found that there were always students left over.

7. How many students were in the class?
- A. 21
 - B. 23
 - C. 25
 - D. 27
-

Items 8 to 10 not released.

Use the following information to answer questions 11 and 12.

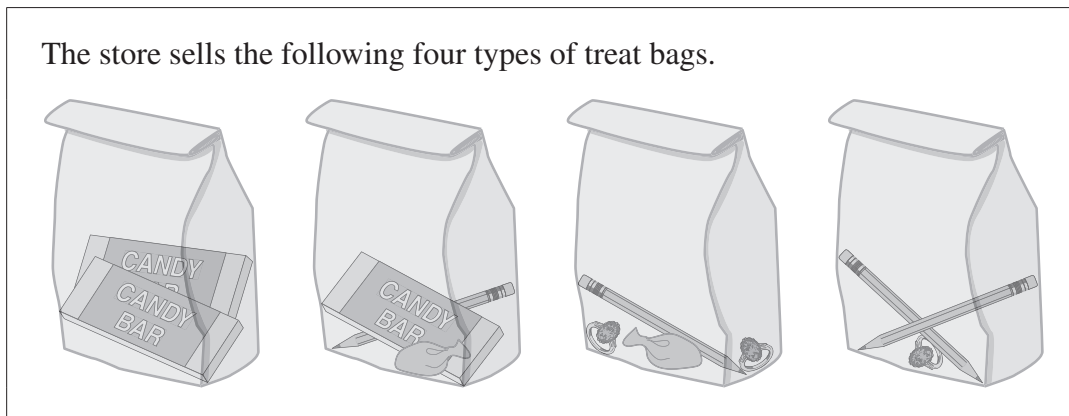
The following table shows some of the prices of four different items that a store sells.

Item	Price
Balloon	\$0.25
Candy bar	\$1.00
Pencil	?
Ring	?

11. Shannon bought an equal number of balloons and candy bars. If she spent a total of \$10.00, then how many balloons and how many candy bars did Shannon buy?
- A. 5
 - B. 6
 - C. 7
 - D. 8

Use the following additional information to answer question 12.

The store sells the following four types of treat bags.



12. If the price of each treat bag is the same, then the price of 1 ring is
- A. \$0.25
 - B. \$0.50
 - C. \$0.75
 - D. \$1.00

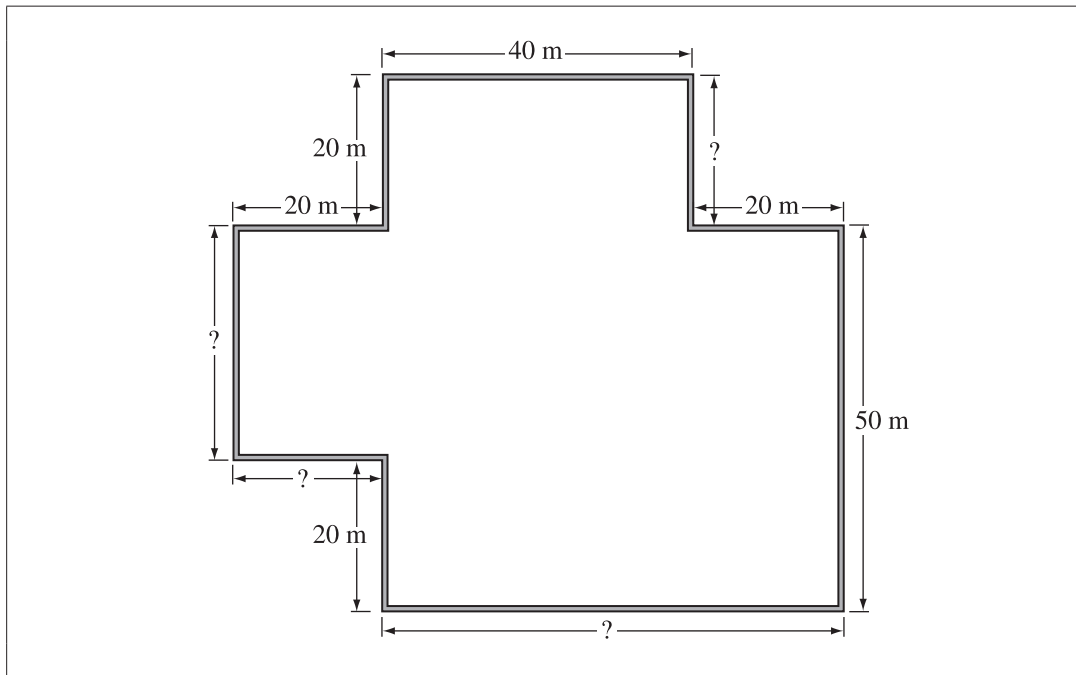
13. **Item not released.**

14. Two brothers plan to save money together to buy a CD player that costs \$147.00. If Jon saves \$12.00 a week and Rene saves \$10.00 a week, then what is the least number of weeks it will take to save \$147.00?

- A. 14 weeks
- B. 13 weeks
- C. 7 weeks
- D. 6 weeks

Items 15 and 16 not released.

Use the following diagram to answer question 17.

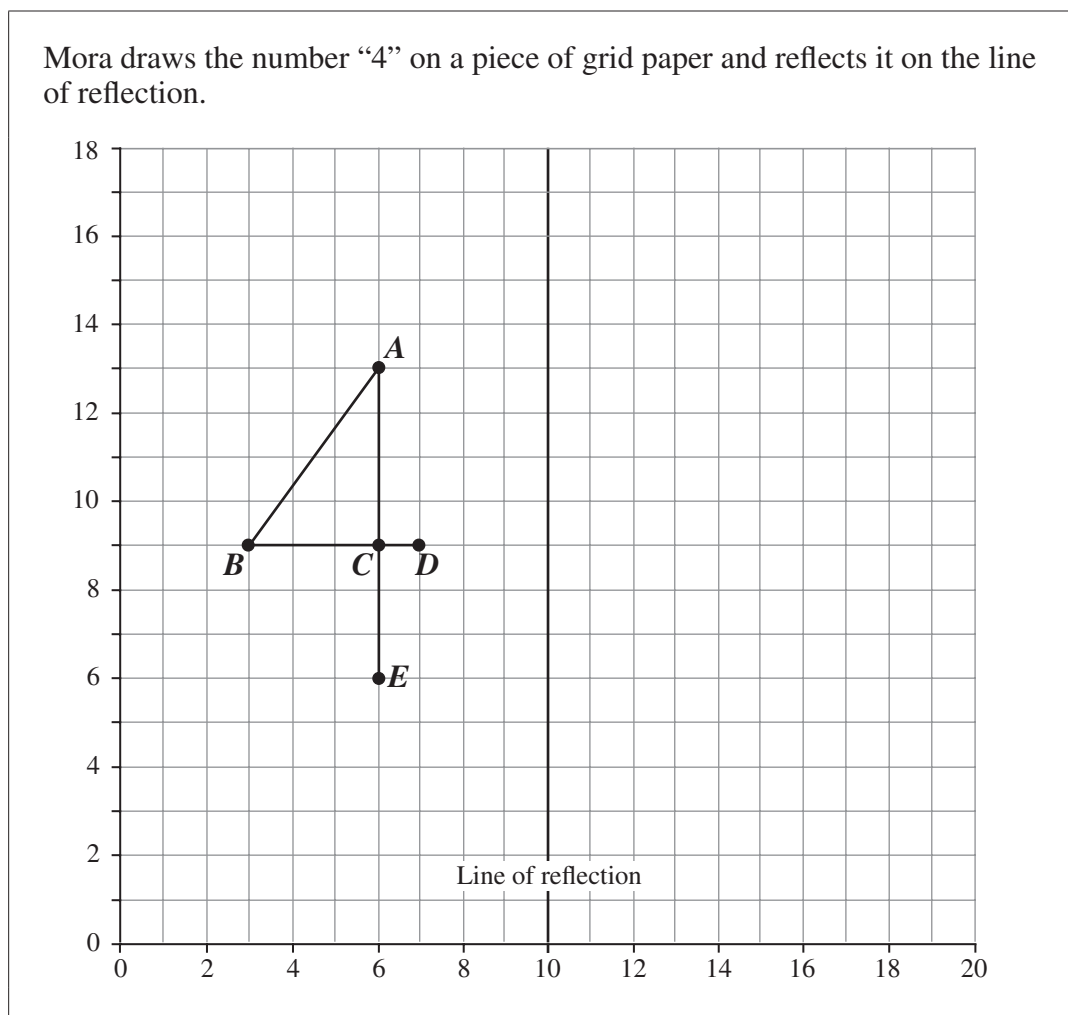


17. What is the perimeter of the shape shown above?

- A. 170 m
- B. 220 m
- C. 300 m
- D. 340 m

Use the following information to answer question 18.

Mora draws the number “4” on a piece of grid paper and reflects it on the line of reflection.



18. What are the coordinates of point B after it is reflected?

- A. (3, 9)
- B. (9, 3)
- C. (9, 17)
- D. (17, 9)

Use the following information to answer question 19.

A group of students bought tickets to a hockey game that cost \$5.00 per ticket. After the game, two of the students each bought a poster that cost \$5.00.

19. If the total amount of money spent by the group was \$105.00, then how many students were in the group?
- A. 18
 - B. 19
 - C. 20
 - D. 21
-

Use the following equations to answer question 20.

The value of \square in the following two equations is the same.

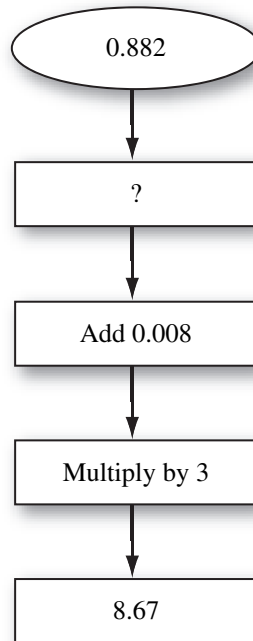
$$24 + 9 = \square$$

$$44 - 5 = \square + \Delta$$

20. What is the value of Δ ?
- A. 5
 - B. 6
 - C. 7
 - D. 8

Use the following information to answer question 21.

A sequence of mathematical operations was performed on the number 0.882 to get an answer of 8.67.



21. Which of the following operations was first performed on the number 0.882 to complete the sequence shown above?

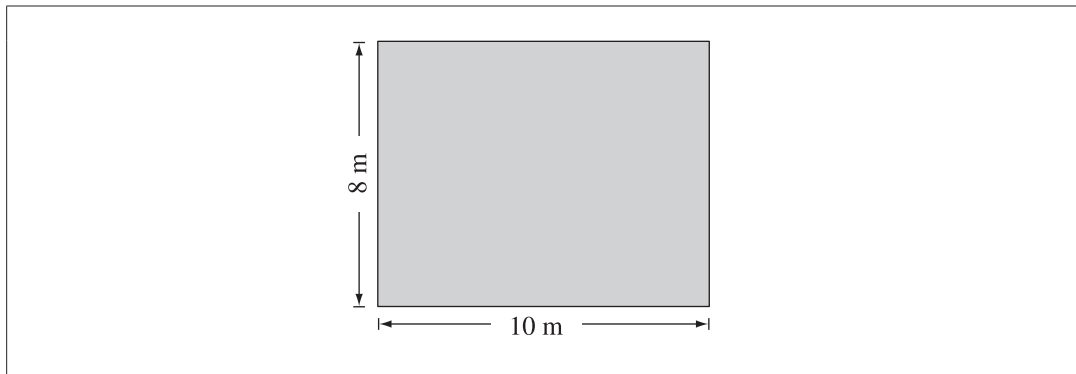
A.

B.

C.

D.

Use the following diagram to answer question 22.



22. If both the length and width of the rectangle shown above are doubled, then what will the area of the new rectangle be?

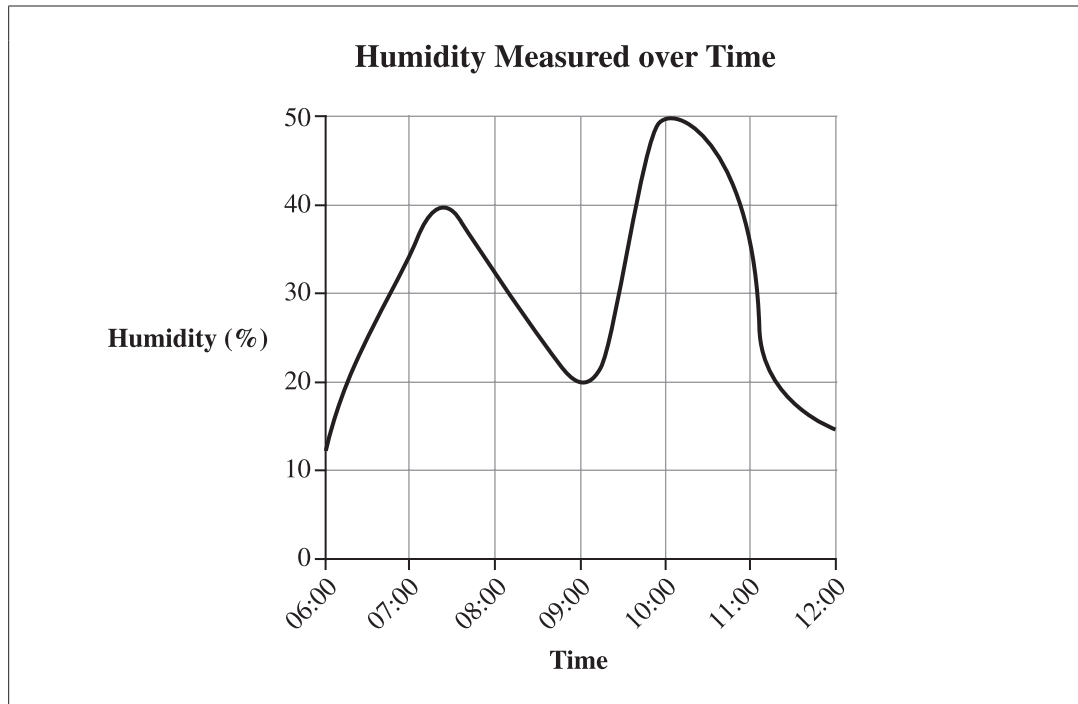
- A. 36 m^2
 - B. 80 m^2
 - C. 160 m^2
 - D. 320 m^2
-

23. Joel keeps all his hockey cards in a special book that holds 6 cards on each page.

If $3\frac{2}{3}$ pages of the book are full, then how many cards has Joel collected?

- A. 14
- B. 18
- C. 22
- D. 36

Use the following graph to answer question 24.



24. According to the graph, how many times between 06:00 and 12:00 was the humidity exactly 30%?

- A. 1
 - B. 2
 - C. 3
 - D. 4
-

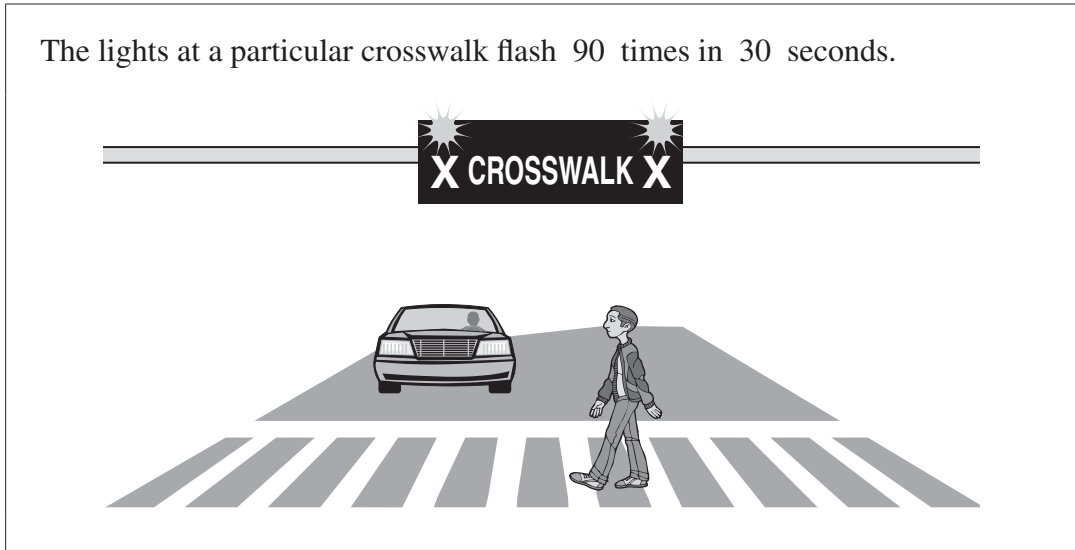
25. The cost of Internet service is \$23.50/month for the first 5 months and then \$34.50/month for every month after that. How much will Internet service cost for one year?

- A. \$414.00
- B. \$359.00
- C. \$290.00
- D. \$282.00

26. **Item not released.**

Use the following information to answer question 27.

The lights at a particular crosswalk flash 90 times in 30 seconds.



27. If a person takes 10 seconds to cross the street, then how many times will the lights flash while that person is crossing?

- A. 80
 - B. 60
 - C. 30
 - D. 20
-

28. Item not released.

Use the following information to answer question 29.

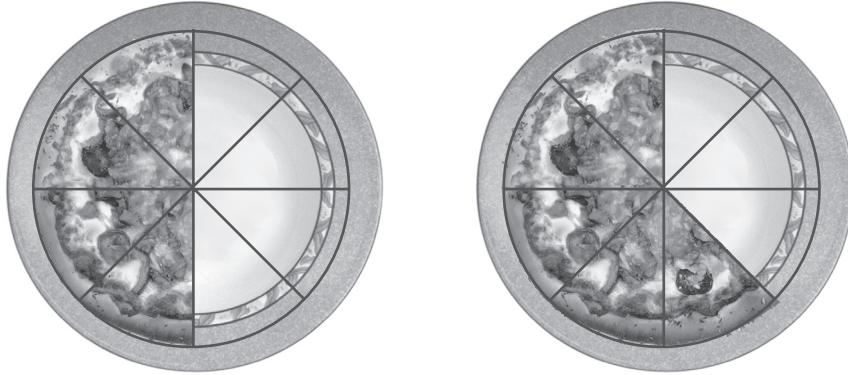
While at the airport, John makes a tally count of the colours of the luggage that passes him on the conveyor belt. The results are shown in the table below.

Colours of Luggage	Frequency
Black	
Beige	
Blue	
Brown	

29. What percentage of the luggage is blue?
- A. 2%
 - B. 4%
 - C. 6%
 - D. 8%

Use the following information to answer question 30.

John and Luisa each ate a number of pizza slices for dinner. The number of slices of pizza left over is shown below.



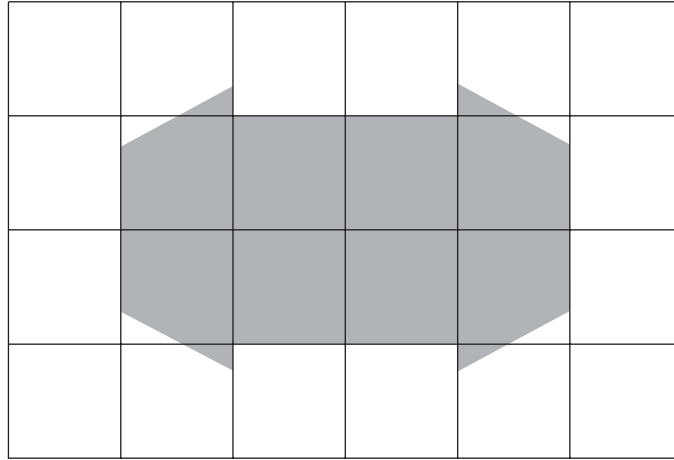
30. If the leftover pizza slices from both pizzas are put together, then what fraction of one whole pizza is there?

- A. $\frac{9}{7}$
- B. $\frac{9}{8}$
- C. $\frac{2}{7}$
- D. $\frac{2}{8}$

31. Item not released.

Use the following information to answer question 32.

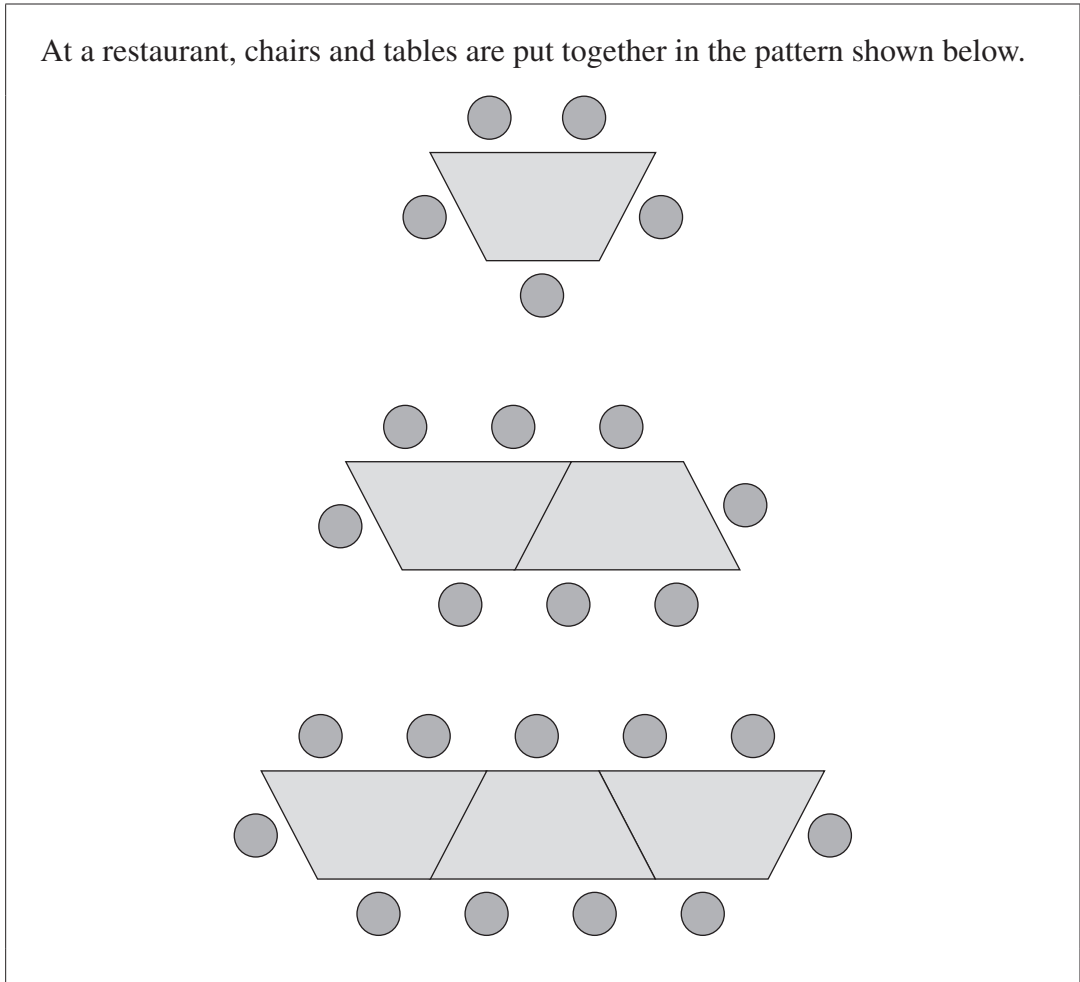
Jessie drew the following shaded shape on grid paper.



32. If the area of the shaded shape is 32 cm^2 , then what is the area of the unshaded part of the grid?
- A. 24 cm^2
 - B. 32 cm^2
 - C. 64 cm^2
 - D. 98 cm^2

Use the following information to answer question 33.

At a restaurant, chairs and tables are put together in the pattern shown below.



33. How many chairs would fit around 6 tables that are put together in the same pattern as shown above?
- A. 20
 - B. 22
 - C. 24
 - D. 30

Use the following information to answer question 34.

Mr. and Mrs. Auger took their 3 children to one of the sporting events shown in the table below.

Ticket Price		
Sporting Event	Adult	Child
Baseball	\$30.00	\$10.00
Basketball	\$35.00	\$15.00
Football	\$25.00	\$10.00
Soccer	\$20.00	\$5.00

34. To which sporting event did the Auger family go if the total cost of the tickets was more than \$70.00 but less than \$90.00?
- A. Baseball
 - B. Basketball
 - C. Football
 - D. Soccer
-

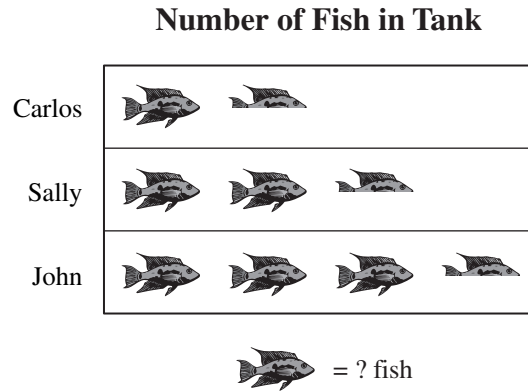
Use the following information to answer question 35.

A particular rectangle has a perimeter of 50 m and an area of 100 m^2 .

35. What is the length of the longest side of the rectangle?
- A. 50 m
 - B. 25 m
 - C. 20 m
 - D. 10 m

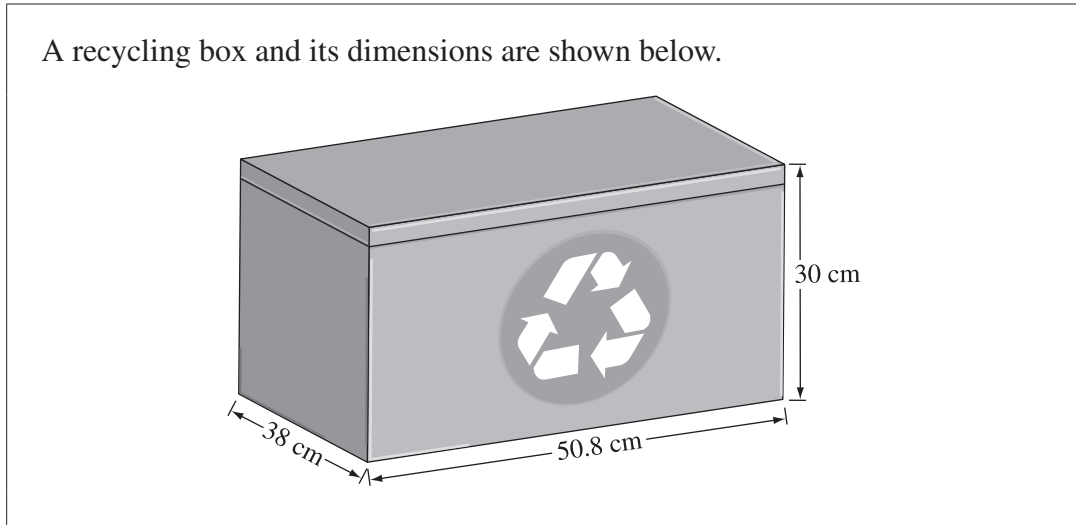
Use the following information to answer question 36.

The pictograph shown below represents the number of fish each child has in the family's fish tank.



36. If there is a total of 30 fish in the tank, then how many fish does each fish symbol represent?
- A. 3
 - B. 4
 - C. 5
 - D. 6

Use the following information to answer question 37.



37. The total volume of the recycling box is

- A. $579\,120\text{ cm}^3$
 - B. $57\,912\text{ cm}^3$
 - C. 475.2 cm^3
 - D. 118.8 cm^3
-

Use the following information to answer question 38.

Step 1: $5 \div 1 = A$

Step 2: $A \times 5 = B$

Step 3: $B - 9 = C$

Step 4: $C + 6 = D$

Step 5: $D \div E = 1$

38. What is the value of the letter E in step 5 shown above?

- A. 1
- B. 2
- C. 11
- D. 22

39. Item not released.

Use the following information to answer question 40.

Several cups of different colours are placed upside down on a table.

Colour of Cup	Number of Cups
Grey	4
Red	3
Yellow	2
Blue	1

40. A marble is placed randomly under one of the cups. What is the probability that the marble is under a red cup?

A. $\frac{1}{10}$

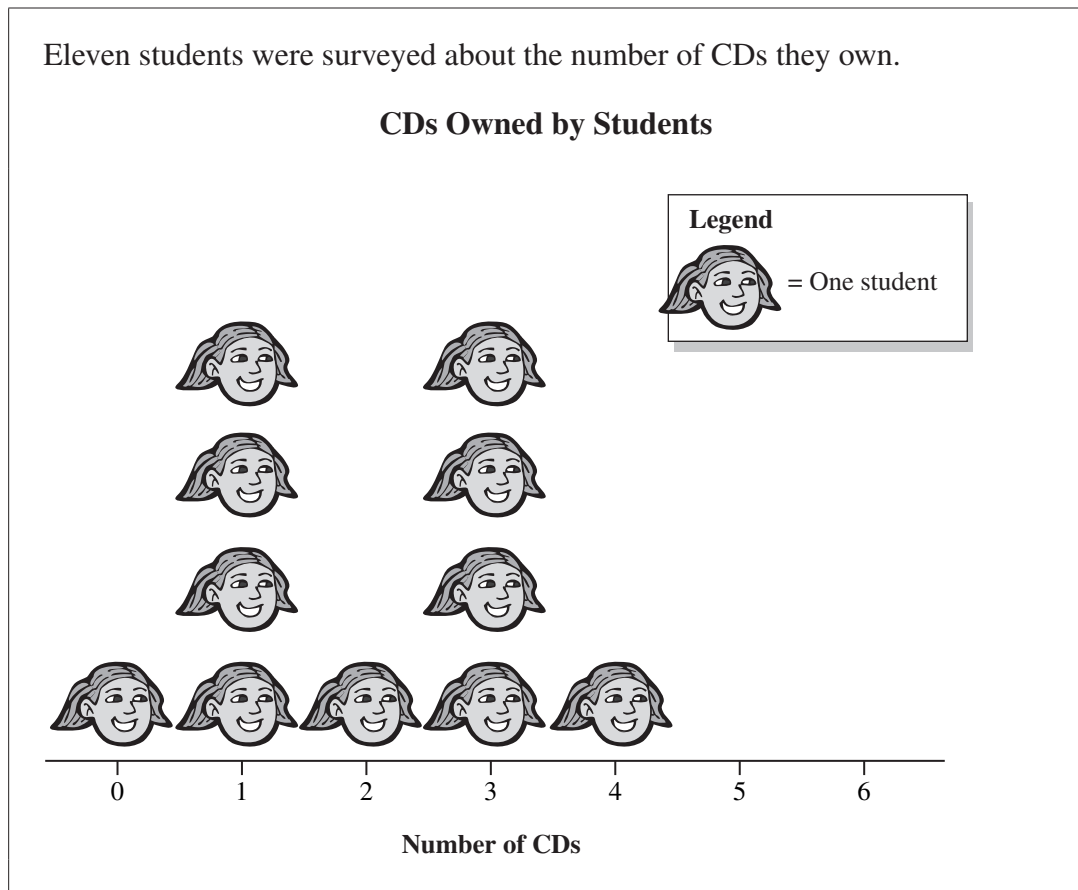
B. $\frac{3}{10}$

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

D. $\frac{3}{7}$

Items 41 to 48 not released.

Use the following information to answer question 49.

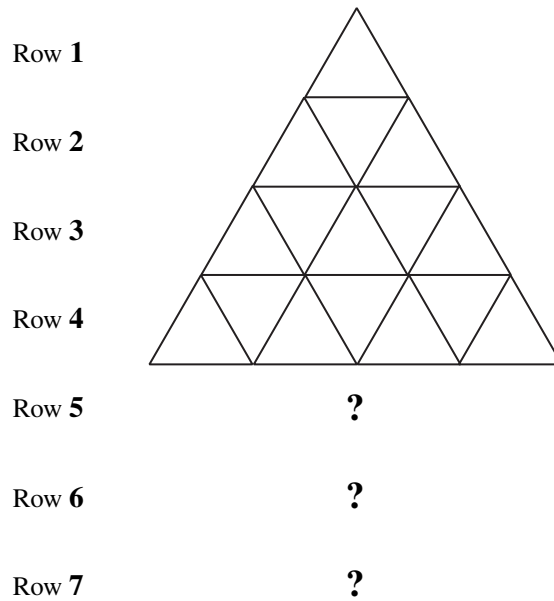


49. How many students own at least one CD but fewer than four CDs?

- A. 4
- B. 5
- C. 9
- D. 10

Use the following information to answer question 50.

A pattern is being made, as shown below.



50. If the pattern continues, then how many triangles will be in row 7?

- A. 13
- B. 21
- C. 36
- D. 49

2008 Test Blueprint and Item Descriptions

The following blueprint shows the reporting categories and test sections (curricular content areas) by which the following 18* items were classified on the 2008 Grade 6 Part A Mathematics Achievement Test.

Mathematical Process	Item Distribution by Reporting Category	Number and Proportion of Released Items
Addition/Subtraction	2, 4, 5, 9, 17	5 (27.8%)
Multiplication/Division	1, 3, 8, 19	4 (22.2%)
Number Relationships	6, 11, 15, 23, 29	5 (27.8%)
Connecting Experiences	10, 13, 25, 28	4 (22.2%)
		18 (60% of Total Test)

*Please Note: Twelve items have not been released from the 2008 test.

The table below provides additional information about each item that appeared on the 2008 Grade 6 Part A Mathematics Achievement Test.

Item	Key	Difficulty (%)	Mathematical Process
1	A	86.8	Multiplication/Division
2	D	87.1	Addition/Subtraction
3	A	88.5	Multiplication/Division
4	C	77.0	Addition/Subtraction
5	C	86.2	Addition/Subtraction
6	A	72.1	Number Relationships
8	B	60.2	Multiplication/Division
9	A	67.0	Addition/Subtraction
10	A	72.3	Connecting Experiences
11	D	68.2	Number Relationships
13	C	80.5	Connecting Experiences
15	B	83.8	Number Relationships
17	A	84.2	Addition/Subtraction
19	A	83.0	Multiplication/Division
23	A	79.0	Number Relationships
25	A	78.3	Connecting Experiences
28	B	80.7	Connecting Experiences
29	D	76.6	Number Relationships

The following table provides information on 30* of the test items that appeared on the 2008 Grade 6 Part B Mathematics Achievement Test.

Test Sections (Curricular Content Areas)	Reporting Category		Number and Proportion of Released Items
	Knowledge	Skills	
	Recall facts, concepts, procedures, and terminology	Apply facts, concepts, procedures, terminology, and relationships to solve problems in a variety of situations	
Number • Number Concepts • Number Operations	1, 2, 21, 27, 30	7, 14, 19, 23, 25, 29, 34	12 (40.0%)
Patterns and Relations • Patterns • Variables and Equations • Relations and Functions	50	6, 11, 12, 20, 33, 38	7 (23.3%)
Shape and Space • Measurement • 3-D Objects and 2-D Shapes • Transformations	37	17, 18, 22, 32, 35	6 (20.0%)
Statistics and Probability • Data Analysis • Chance and Uncertainty	5, 24, 36	40, 49	5 (16.7%)
Number and Proportion of Items on Test	10 (20%)	20 (40%)	30 (60% of Total Test)

*Please Note: Twenty items have not been released from the 2008 test.

The following table provides additional information about each item that appeared on the 2008 Grade 6 Part B Mathematics Achievement Test.

Item	Key	Difficulty (%)	Reporting Category	Strand	Item Description
1	D	82.7	K	N	Match a number value that is greater than one million written in standard form to the number value written in word form
2	A	76.3	K	N	Identify the correct rationale for solving a problem involving estimation
5	A	59.0	K	SP	Calculate the difference between two values given in a stem-and-leaf plot
6	A	87.2	S	PR	Determine and extend a numeric pattern displayed in a table to make a calculation involving cost
7	B	66.3	S	N	Apply knowledge of multiples and/or factoring to determine the number value that represents a prime number
11	D	73.2	S	PR	Given the total amount spent on two items, and the price of each item, determine the total number of each item bought if the number of each item is the same
12	B	68.1	S	PR	Apply pre-algebra strategies to determine the value of an item in a set of four items given the value of only two of the items
14	C	66.4	S	N	Calculate how many weeks it would take for two people to save a certain amount of money if each person saved a different amount of money each week

Item	Key	Difficulty (%)	Reporting Category	Strand	Item Description
17	C	78.0	S	SS	Determine the perimeter of an irregular polygon by comparing unknown side lengths to known side lengths of the polygon
18	D	59.0	S	SS	Determine the coordinates of an image after it has been reflected on a line of reflection
19	B	56.8	S	N	Solve a multi-step money problem involving one unknown
20	B	64.7	S	PR	Given two equations, apply algebra strategies to solve for an unknown variable
21	A	58.1	K	N	Determine the mathematical operation that is necessary to complete a sequence of operations involving whole number and decimal values
22	D	50.4	S	SS	Determine the effect on area of a rectangle after its dimensions are increased by a certain factor
23	C	77.0	S	N	Demonstrate understanding of mixed numerals by representing integer values and fractions symbolically and/or concretely
24	D	77.1	K	SP	Read information presented in a line graph to determine the frequency of an event
25	B	74.4	S	N	Solve a multi-step money problem by determining the total cost of a yearly subscription that is based on a monthly cost that changes over time
27	C	73.3	K	N	Determine the value of a term in a ratio using knowledge of equivalent fractions
29	D	46.3	S	N	Use data from a tally chart to represent one outcome as a percentage of all the reported outcomes
30	B	68.7	K	N	Determine the improper fraction given a pictorial representation of two proper fractions

Item	Key	Difficulty (%)	Reporting Category	Strand	Item Description
32	C	55.8	S	SS	Determine the area of one square unit on a grid given the area of an irregular shape located on the grid
33	A	54.0	S	PR	Determine the relationship between two variables in a pattern represented pictorially to make a prediction
34	C	75.9	S	N	Perform arithmetic operations on whole numbers and decimals to determine a value that falls within a given range
35	C	47.8	S	SS	Determine the dimensions of a rectangle given its perimeter and area
36	B	71.0	K	SP	Determine the value represented by a symbol in a pictograph
37	B	55.8	K	SS	Calculate the volume of a rectangular prism with the dimensions given in whole number and decimal values
38	D	52.3	S	PR	Use pre-algebra strategies to solve a series of equations with one unknown and with whole number coefficients and solutions
40	B	74.8	S	SP	Calculate the theoretical probability of a single event expressed as a proper fraction
49	C	56.8	S	SP	Read and interpret a line plot to draw a conclusion
50	A	70.2	K	PR	Determine and extend a geometric pattern to predict the number of shapes in a particular row of the pattern