Assessment Guide
Cumulative Review 1
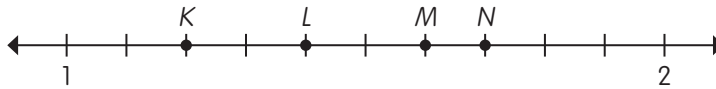
Section A   Multiple-Choice Questions

(10 × 2 = 20 points)

1 Which point shows the correct location of $1\frac{2}{5}$?

A Point *K*

B Point *L*

C Point *M*

D Point *N*

2 Which expression represents 162 as a product of its prime factors?

A $2 \times 2 \times 3$

B $2 \times 2 \times 2 \times 2 \times 3$

C $2 \times 3 \times 3 \times 3$

D $2 \times 3 \times 3 \times 3 \times 3$

3 Which numbers are **not** the common factors of 52 and 76?

Choose **all** that apply.

A 2

B 3

C 4

D 6

E 13

4 Which statements are true?

Choose **all** that apply.

(A) $|-17| < |-19|$

(B) $|125| > |-132|$

(C) $81 = |-81|$

(D) $|-63| < |-48|$

(E) $|-100| > -100$

(F) $|204| > |-240|$

5 What is the value of $\frac{17}{28} \div \frac{5}{16}$?

(A) $\frac{85}{448}$

(B) $\frac{35}{68}$

(C) $1\frac{33}{35}$

(D) $2\frac{2}{35}$

6 What is the square of 16?

(A) 4

(B) 32

(C) 256

(D) 276

7 Which pairs of decimals give a difference of 61.26?

Choose **all** that apply.

(A) $78.91 - 17.65$

(B) $71.02 - 9.82$

(C) $182.075 - 120.715$

(D) $96.468 - 35.208$

(E) $572.916 - 511.69$

8 What is the value of 975 ÷ 0.78?

(A) 12,500

(B) 1,250

(C) 125

(D) 12.5

9 The table shows a monthly bank account statement from July to December.

Month	July	August	September	October	November	December
Balance	$620	$930	–$250	$1,140	–$317	–$1,082

Which statements are true?

Choose **all** that apply.

(A) The bank was owed –$317 in November.

(B) The account was overdrawn by the least amount in September.

(C) The account was overdrawn in September, November, and December.

(D) The total amount owed to the bank was $2,690.

(E) The total amount of credit in the account was less than the total amount owed to the bank.

10 Luke cut $22\frac{1}{2}$ meters of wire into equal pieces, each $\frac{5}{6}$ meter long. How many pieces did Luke cut?

(A) 57

(B) 42

(C) 27

(D) 15

Section B   Short Answer Questions

11 Draw a horizontal number line from –7 to 3 in the space below to represent the following set of numbers.

2, –6, 0, –1, –3, –2

(11 to 19 Part A,
19 Part B: 2 points each)

12 What is the least common multiple of 7 and 9?

Write your answer in the answer grid.

13 What is the value of $9^2 \times 5^3 - 17^2$?

Write your answer in the answer grid.

4 Cumulative Review 1

Assessment Guide Course 1

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14 Compare each set of numbers using > or <.

Write each answer in the circle.

Set 1 0.95 ◯ $\frac{24}{25}$
Set 2 $\frac{5}{8}$ ◯ 0.58
Set 3 $11\frac{4}{7}$ ◯ 11.71
Set 4 0.19 ◯ $\frac{1}{9}$

15 Find the value of 0.308×0.62. Round your answer to 3 decimal places.

Write your answer in the answer grid.

16 Use a positive or negative number to represent each situation.

Write each answer in the table.

Situation 1	
325°F below zero	
Situation 2	
A salary increment of $278 per year	
Situation 3	
An altitude of 31,670 feet above ground level	
Situation 4	
Riding an elevator down 19 floors	

17 Find the value of 7.39 ÷ 0.4.

Write your answer in the answer grid.

18 Using the fact that $6{,}500 = 2 \times 2 \times 5 \times 5 \times 5 \times 13$, express each number below as a product of its prime factors.

1,300   130

Explain your answers in the space below.

19 This question has two parts.

The capacity of a large bottle is $2\frac{1}{4}$ liters. 20 large bottles of water are poured into a container.

Part A

What is the volume in liters of the water in the container?

Write your answer in the answer grid.

Part B

All the water in the container is poured into small bottles, each with a capacity of $\frac{9}{10}$ liter. How many small bottles are needed?

Write your answer in the answer grid.

Section C   Constructed Response   (20: 3 points; 21: 3 points; 22: 4 points)

20 Three wall clocks chime every 10 minutes, 12 minutes and 18 minutes respectively. Given that they last chimed together at 1:30 P.M., how many times will they chime together from 2 P.M. to 10 A.M. the next day?

Write your answer and your work or explanation in the space below.

21 This question has three parts.

The temperature at which a substance melts is called its melting point.
The table shows the melting points of some elements.

Element	Hydrogen	Oxygen	Nitrogen	Neon	Fluorine
Melting Point (°C)	−259	−219	−210	−249	−220

Part A

Which element has the lowest melting point?

Write your answer in the space below.

Part B

Name a pair of elements such that their melting points differ by 10°C.

Explain your answer in the space below.

Part C

Order the melting points from highest to lowest.

Write your answer in the space below.

22 This question has three parts.

In a pet shop, cat food is sold at $9.48 for 12 cans and dog food is sold at $8.96 for 8 cans.

Part A

Emma has $56.88 in her pocket. How many cans of cat food can she buy?

Write your answer in the answer grid.

Part B

Ryan claims that $83 is enough to pay for 75 cans of dog food.
Do you agree?

Explain your answer in the space below.

Part C

Amy has $56.45 in her wallet. How much will be left after she buys 6 cans of cat food and 4 cans of dog food?

Write your answer and your work or explanation in the space below.

Assessment Guide
Cumulative Review 2

50

Suggested Time:
45 min

Section A   Multiple-Choice Questions

(10 × 2 = 20 points)

1 Mr. Jones has 25 roses and 37 lilies. What is the ratio of the number of roses to the total number of flowers Mr. Jones has?

(**A**) 25 : 37

(**B**) 25 : 62

(**C**) 37 : 25

(**D**) 37 : 62

2 Which pairs of ratios are **not** equivalent to 18 : 54?

Choose **all** that apply.

(**A**) 1 : 3

(**B**) 1 : 6

(**C**) 36 : 108

(**D**) 63 : 189

(**E**) 108 : 304

3 What is $49\frac{5}{8}\%$ expressed as a fraction in simplest form?

(**A**) $\frac{5}{8}$

(**B**) $\frac{49}{100}$

(**C**) $\frac{327}{600}$

(**D**) $\frac{397}{800}$

4 What is 71% of $2,890?

(A) $2,051.90

(B) $1,991.90

(C) $1,491.90

(D) $491.30

5 A machine can seal 140 bottles per minute. At this rate, how many bottles can it seal in 15 minutes?

(A) 1,550

(B) 1,900

(C) 2,100

(D) 3,190

6 An eagle can fly at a speed of 128 kilometers per hour. What is the distance in kilometers that it can fly in 1 hour 45 minutes?

(A) 256

(B) 224

(C) 185.6

(D) 96

7 Emma, Taylor, and Bryony collected a number of hair clips in the ratio 5 : 9 : 6. If Emma and Taylor collected 350 hair clips in all, how many hair clips did Bryony collect?

(A) 25

(B) 125

(C) 150

(D) 225

8 The table shows the postal charges for sending parcels to Country X.

First 4 Ounces	$2.66
Per Additional 1 Ounce	$1.30

How much does it cost to send a parcel weighing 10 ounces to Country X?

A $3.96

B $6.62

C $7.92

D $10.46

9 A motorist left Town P at 12:30 P.M. and reached Town Q at 5:00 P.M. The motorist traveled at an average speed of 76 kilometers per hour. What was the distance in kilometers between Town P and Town Q?

A 418

B 342

C 272

D 266

10 There were 42 girls and 78 boys in a sports club. What percent of the members were boys?

A 65%

B 55%

C 54%

D 35%

Section B   Short Answer Questions

⑪ The ratio of the number of birds to the number of hamsters in a pet store is 15 : 48. What fraction of the pets in the store is birds?

Write your answer in simplest form in the space below.

⑫ Name two ratios that are equivalent to 10 : 35.

Explain how you worked out the answers in the space below.

⑬ Express each fraction or mixed number as a percent.

Write each answer in the table.

Fraction or Mixed Number	Percent
$2\frac{3}{5}$	
$\frac{9}{8}$	
$\frac{35}{200}$	
$\frac{7}{560}$	

14 The table shows the sale prices of three brands of cereal.

Brand	Mass of Cereal	Sale Price
X	33 oz	$5.61
Y	11.6 oz	$3.48
Z	18.5 oz	$4.81

Which brand of cereal costs the most per ounce?

Explain how you worked out the answer in the space below.

15 23% of a number is 138. What is the number?

Write your answer in the answer grid.

16 This question has two parts.

Jason cycles from his home to a park at a speed of 3 meters per second. The distance between his home and the park is 1,062 meters.

Part A

How many seconds does he take to cycle from his home to the park?

Write your answer in the answer grid.

Part B

If Jason wants to take 33 fewer seconds to reach the park, at what speed in meters per second must he cycle? Round your answer to 2 decimal places.

Write your answer in the answer grid.

17 This question has two parts.

The bar model shows the ratio of the number of romance novels to the number of mystery novels.

romance novels

mystery novels

There are 78 romance and mystery novels in all.

Part A
How many novels does each unit in the bar model represent?

Explain your answer in the space below.

Part B
The ratio of the number of mystery novels to the number of fantasy novels is 1 : 3.

- How many units should be drawn to represent the number of fantasy novels?
- How many fantasy novels are there?

Write your answers in the space below.

18 Cole donated $40.80 to charity, spent $128, and had $35.20 left. What percent of his money did he donate to charity?

Write your answer in the answer grid.

Section C   Constructed Response

19 This question has two parts.

Today the ratio of Lily's age to Kyle's age is 4 : 11. After 20 years, the ratio will become 9 : 16.

Part A

How old is Kyle today?

Write your answer and your work or explanation in the space below.

Part B

Find the ratio of Lily's age to Kyle's age after 30 years.

Write the ratio in simplest form in the space below.

20 Leah and Daniel went to pick some fruit in a farm. 30% of the fruit that Leah picked were strawberries. 55% of the fruit that Daniel picked were strawberries. Eric thinks that Daniel picked more strawberries than Leah.

- Explain the error in Eric's thinking.
- Give one example to support your reasoning.
- Give one situation when Eric's thinking would be true.

Write your explanation and answers in the space below.

21 This question has two parts.

A car traveled from City X to City Y at an average speed of 90 kilometers per hour. It then traveled back to City X using the same route at an average speed of 75 kilometers per hour. The car took a total of 16.5 hours to travel between two cities.

Part A

If the car left City Y at 8 A.M, what time would it reach City X?

Write your answer and your work or explanation in the space below.

Part B

What is the distance in kilometers between City X and City Y?

Write your answer in the answer grid.

Assessment Guide
Cumulative Review 3

Section A Multiple-Choice Questions

(10 × 2 = 20 points)

1 A file costs $5k$ dollars and a notebook costs $\frac{1}{6}$ of the file. Which expression shows the cost of the notebook in dollars?

(**A**) $5k - 6$

(**B**) $5k + 6$

(**C**) $5k \div 6$

(**D**) $5k \times 6$

2 What is the value of $\frac{9x-2}{4} + 2(3 + 7x)$ when $x = 4$?

(**A**) 71

(**B**) $70\frac{1}{2}$

(**C**) $36\frac{1}{2}$

(**D**) $30\frac{3}{4}$

3 Which pairs of expressions are **not** equivalent?

Choose **all** that apply.

(**A**) $p + p + p + p$ and $p + 4$

(**B**) $2q + 13 + 5q - 10$ and $7q + 3$

(**C**) $\frac{32r}{4}$ and $\frac{20r}{2}$

(**D**) $11s$ and $4s + s + 6s$

(**E**) $15u - 9u$ and $\frac{54u}{9}$

4 Factor the expression $18m + 27 - 6m - 11$.

(A) $9(2m + 3)$

(B) $8(3m + 2)$

(C) $6(2m + 1)$

(D) $4(3m + 4)$

5 Which is the solution of the equation $\frac{3}{5}h = \frac{7}{10}$?

(A) $h = 2\frac{1}{3}$

(B) $h = 1\frac{1}{6}$

(C) $h = \frac{21}{50}$

(D) $h = \frac{1}{10}$

6 The length of a rectangle is four times its width, w inches. The perimeter of the rectangle is p inches. Which equation describes the relationship between w and p?

(A) $p = 5w$

(B) $p = 8w$

(C) $p = 10w$

(D) $p = 12w$

7 Which inequality represents the number line shown?
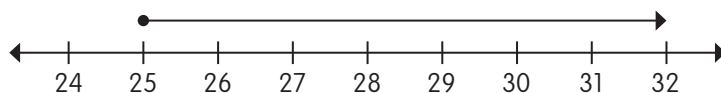
(A) $x \geq 25$

(B) $x > 25$

(C) $x \leq 25$

(D) $x < 25$

8 Ms. Lee bought g peaches at 80 cents each and $(g + 5)$ mangoes at 60 cents each. What is the total amount of money, in cents, that Ms. Lee spent?

(A) $140g + 400$

(B) $140g + 300$

(C) $80g + 400$

(D) $60g + 300$

9 Alex painted x chairs on Monday and 6 more chairs on Tuesday. He painted a total of 109 chairs in two days. Which equation represents this situation?

(A) $x + 6 = 109$

(B) $x - 6 = 109$

(C) $2x + 6 = 109$

(D) $2x - 6 = 109$

10 A machine can seal fewer than 80 bottles per minute. Which inequality represents this situation?

(A) $x < 80$

(B) $x > 80$

(C) $x \leq 80$

(D) $x \geq 80$

Section B　Short Answer Questions

11 6 pencils cost y dollars. A pen costs 75 cents more than a pencil. Find an algebraic expression that represents the cost of the pen in dollars.

Write your answer in the space below.

12 Evaluate $14 - \dfrac{4w + 3}{5} + \dfrac{w}{8}$ when $w = 10$.

Write your answer as a mixed number in simplest form in the space below.

13 Expand and simplify $\frac{2}{3}(21z + 15) + 4(3 - 2z)$.

Write your answer in the space below.

14 Explain whether $g = 1\frac{2}{3}$ is the solution of the equation $g - \frac{2}{3} = 2\frac{1}{3}$.
If $g = 1\frac{2}{3}$ is not the solution, what is the correct solution?

Show your explanation and write your answer in the space below.

15 Jaden is comparing the two equations shown.

$8x = 72$ $\qquad$ $x - 3 = 6$

He claims that the two equations are equivalent because they have the same solution.
Do you agree?

Explain your answer in the space below.

16 • Draw a number line to represent the solutions of the inequality $p \geq \frac{27}{8}$.
 • Give three integer solutions of the inequality.

Show your drawing and write your answers in the space below.

17 This question has two parts.

Liam wrapped h small boxes using 2 meters of wrapping paper for each box. He also wrapped $(h + 11)$ big boxes using 6 meters of wrapping paper for each box.

Part A

Find an algebraic expression for the total amount of wrapping paper Liam used.

Write your answer in the space below.

Part B

How much more wrapping paper did he use to wrap the big boxes than the small boxes if $h = 25$?

Write your answer and your work or explanation in the space below.

18 Ryan thinks of a number. When he multiplies the number by 14, he will get the same result as $\frac{7}{12}$ of 816. What is the number that Ryan thought of?

Write your answer and your work or explanation in the space below.

19 Alan bought 7 boxes of beads. Each box contains 80 beads and fewer than 45% of the beads in each box have patterns on them. What is the greatest possible number of beads that have patterns on them in all the 7 boxes?

Write your answer and your work or explanation in the space below.

Section C Constructed Response

20 This question has two parts.

A bookshelf weighs $6w$ pounds more than a chair. 5 bookshelves and 9 chairs weigh $(72w + 35)$ pounds in all.

Part A

Find the weight of the chair in terms of w.

Write your answer and your work or explanation in the space below.

Part B

Find the total weight of 2 bookshelves and 5 chairs if $w = 4$.

Write your answer and your work or explanation in the space below.

21 This question has three parts.

Each figure in the pattern consists of some squares and circles.
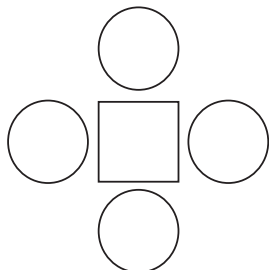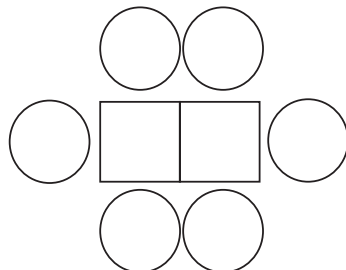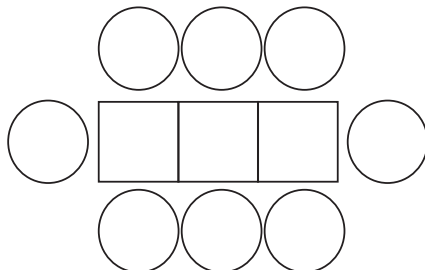
| Figure 1 | Figure 2 | Figure 3 |

Part A

Find the number of circles in Figure 5.

Write your answer and explanation in the space below.

Part B

There are *x* squares and *y* circles in Figure n.

Write an equation that relates *x* and *y* in the space below.

Part C

Find the number of circles in Figure 50.

Write your answer and your work or explanation in the space below.

22 This question has two parts.

A rectangular field has a length of 35 yards and a width of t yards. The width of the field is at least 30% shorter than its length.

Part A

Find an inequality to represent this situation.

Write your answer in the space below.

Part B

Suppose t is a whole number.

- What is the greatest possible perimeter of the field?
- What is the greatest possible area of the field?

Write your answers and your work or explanations in the space below.

Assessment Guide
Cumulative Review 4

Section A   Multiple-Choice Questions

(10 × 2 = 20 points)

1 Gavin plotted the points $A(-1, 3)$, $B(2, 3)$, $C(2, -2)$, $D(4, -2)$, $E(4, 3)$, $F(7, 3)$, $G(7, 5)$, and $H(-1, 5)$ on a coordinate plane. Then, he joined the points to form a closed figure $ABCDEFGH$. Which letter was formed?

A C

B O

C T

D U

2 What is the total length of $\overline{EF}$ and $\overline{KL}$?
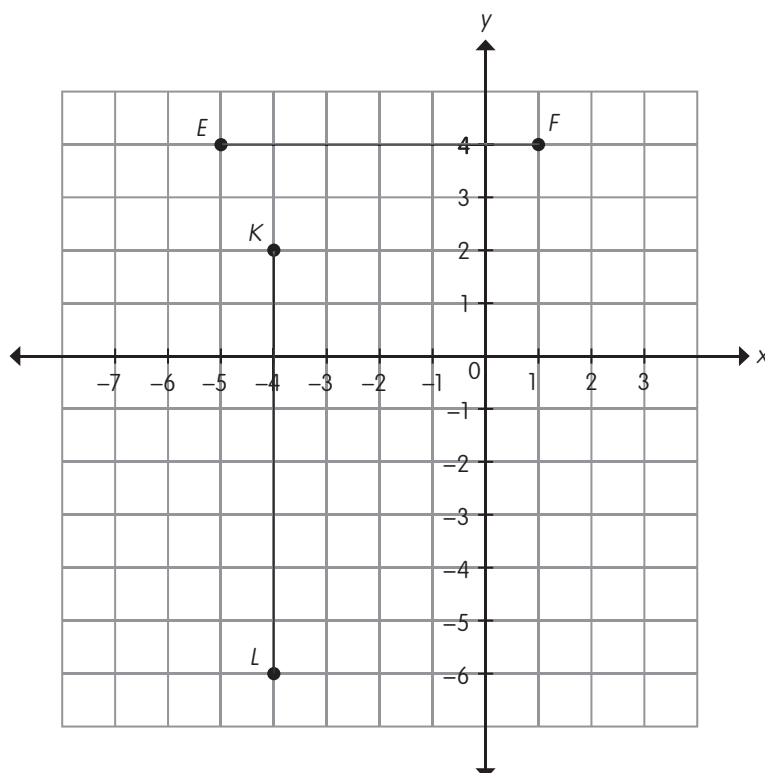
A 14 units

B 8 units

C 16 units

D 6 units

3 What is the area in square meters of the triangle shown?
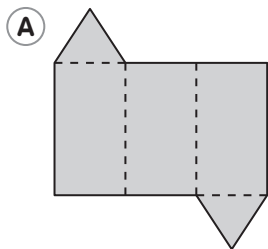

16.5 m

24 m

7 m

5.8 m
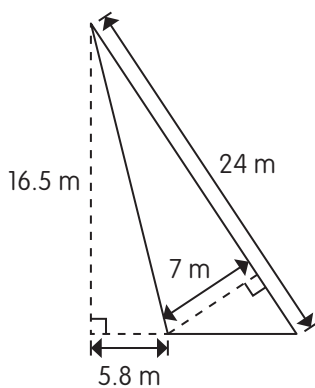
A 198

B 84

C 57.75

D 47.85

4 The area of trapezoid *RSTU* is 579.5 square inches. What is the length in inches of $\overline{ST}$?

25 in.

R   *U*

19 in.

S   *T*
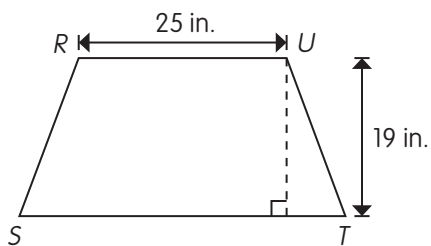
A 25

B 30

C 36

D 46

5 Which is **not** a net of a prism?

Choose **all** that apply.

(A)

(B)

(C)

(D)

(E)

(F)
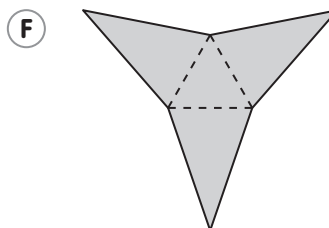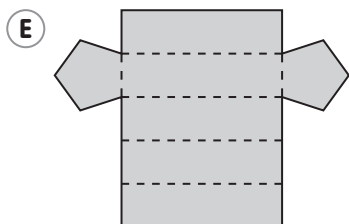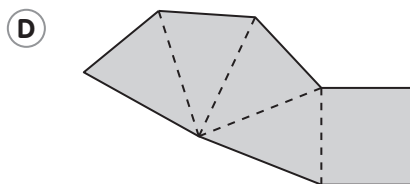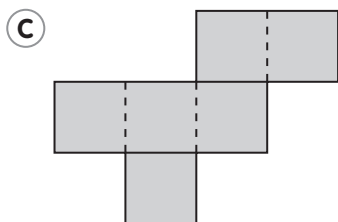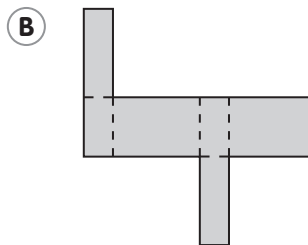
6 A closed rectangular container measures 28 centimeters long, 9 centimeters wide, and 13 centimeters high. What is its surface area in square centimeters?

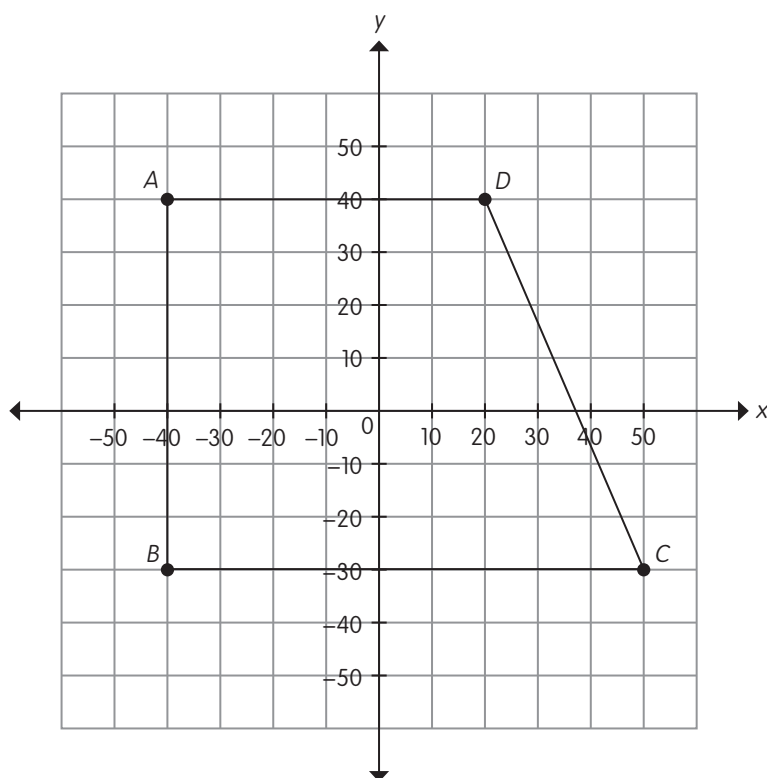**A** 1,466

B 1,214

C 1,102

D 733

7 This rectangular prism is built with small cubes.

1 in.

2 in.

$\frac{3}{4}$ in.
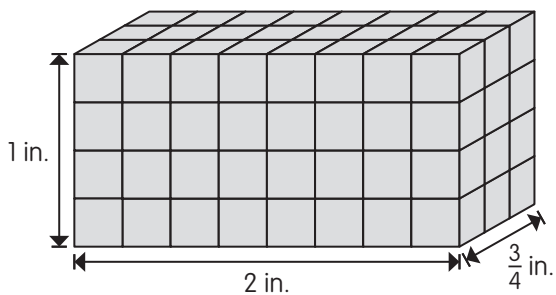
What is the volume in cubic inch of each small cube?

A $\frac{3}{64}$

B $\frac{1}{64}$

C $\frac{3}{32}$

D $\frac{1}{16}$

8 The diagram shows the outline of a building. The side length of each grid square is 10 meters.

A man is standing within the building, 20 meters from $\overline{AD}$ and 30 meters from $\overline{AB}$. What are the coordinates of the point representing the man's location?

(**A**) (–10, 20)

(**B**) (–10, –10)

(**C**) (10, –20)

(**D**) (20, –30)

9 A regular hexagon is shown. If the shaded area is 13.2 square centimeters, what is the area in square centimeters of the regular hexagon?
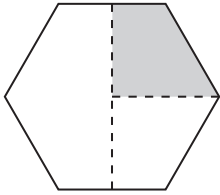

(A) 39.6

(B) 52.8

(C) 66.0

(D) 79.2

10 Jason has a bottle that is a rectangular prism. The bottle measures 9 centimeters long, 7 centimeters wide, and 21 centimeters high. Jason filled it completely with water, and then drank $\frac{2}{5}$ of it. How many cubic centimeters of water were left in the bottle?

(A) 1,323

(B) 793.8

(C) 529.2

(D) 264.6

Section B   Short Answer Questions

11 Points *M*, *N*, and *P* are three points on a coordinate plane. The coordinates of point *M* are (–3, 2), the coordinates of point *N* are (4, 2), and point *P* is in the fourth quadrant. Plot these points on the given coordinate plane, and then join them to form a right isosceles triangle *MNP*.
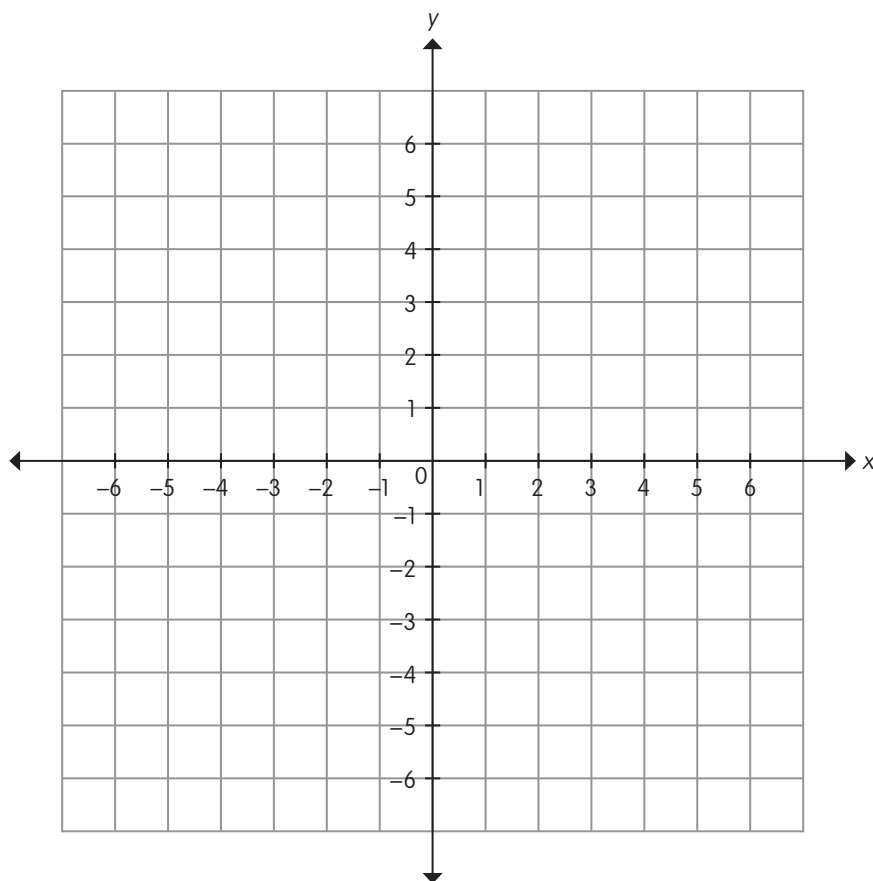
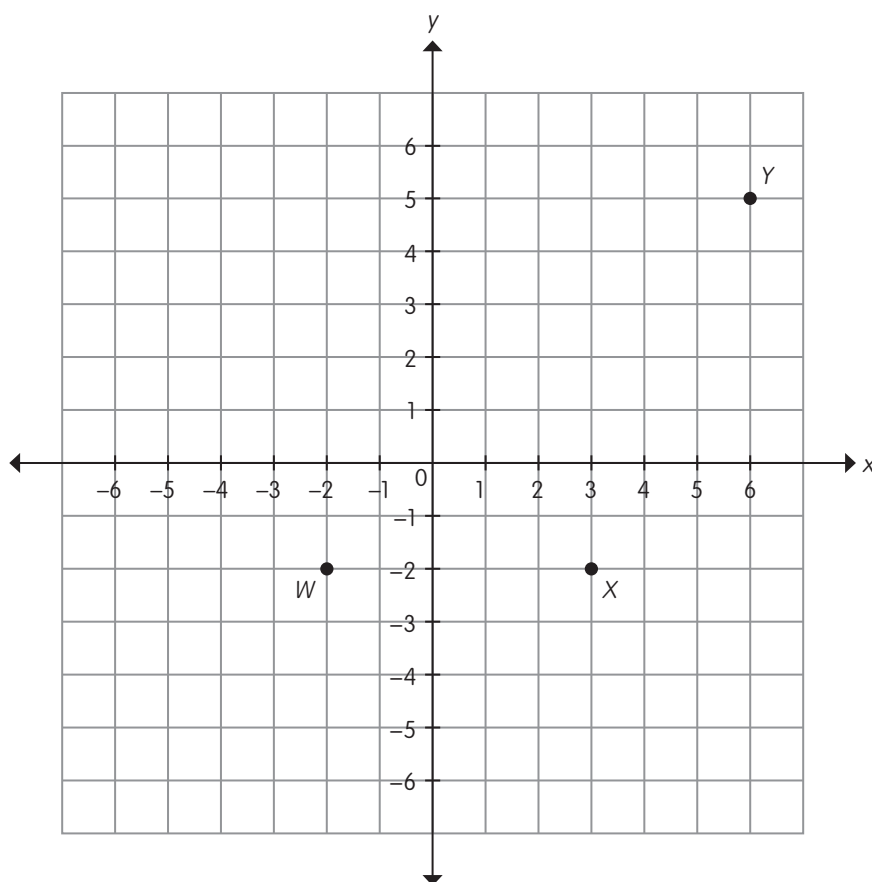What are the coordinates of point *P*?

Explain your answer in the space below.

12 Figure *HKLM* is a trapezoid. The length of $\overline{JK}$ is $\frac{1}{2}$ the length of $\overline{HI}$. What is the total area of the shaded regions?
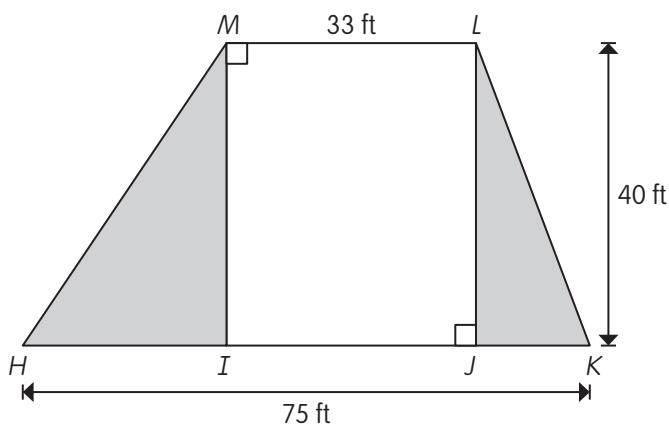
Write your answer and your work or explanation in the space below.

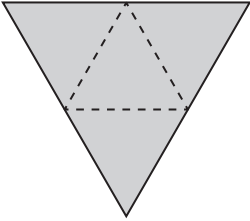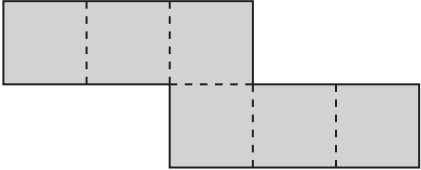**13** Points *W*, *X*, and *Y* are shown on the coordinate plane below.

Ella wants to draw a parallelogram *WXYZ*.

- At which location of the coordinate plane should she plot point *Z*?
- What is the area of this parallelogram?

Write your answers in the space below.

14 Name the solid that each net forms.

Write each answer in the table.

Net	Solid

15 Tyler wants to wrap a present that is a square pyramid. The square pyramid has four faces that are congruent isosceles triangles. How much of the wrapping paper in square centimeters will he have left if he has 820 square centimeters of wrapping paper at first?
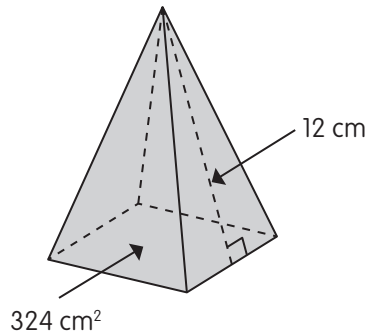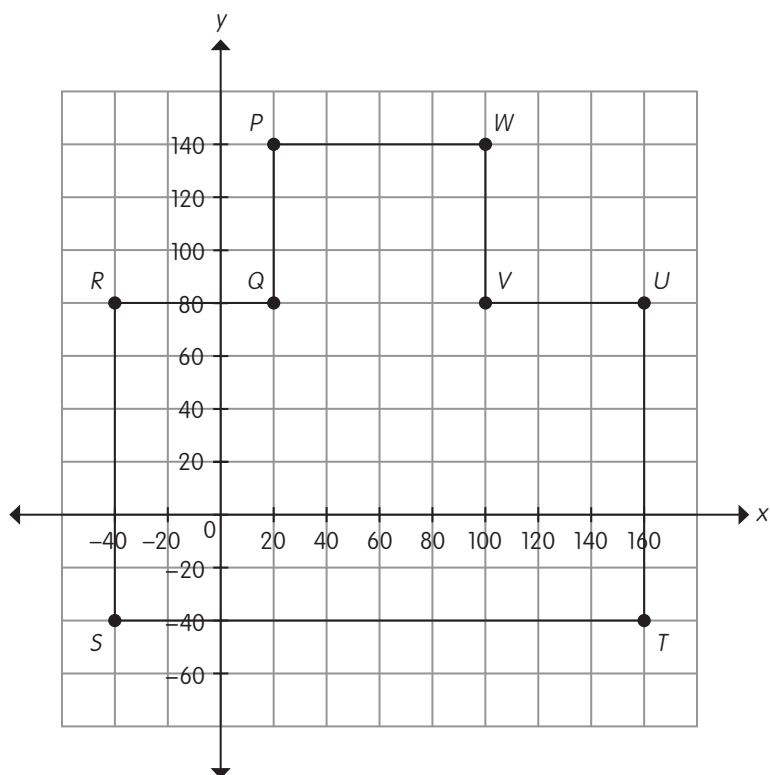

12 cm

324 cm²

Write your answer in the answer grid.

16 The solid below is made up of identical cubes. The volume of the solid is 1,536 cubic centimeters. What is the edge length in centimeters of each cube?
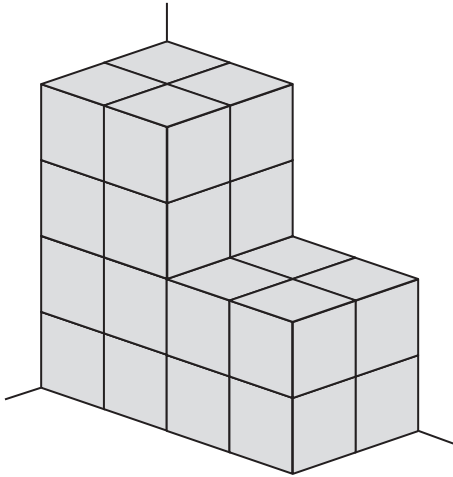
Write your answer in the answer grid.

17 The diagram shows the outline of a park. The side length of each grid square is 20 meters.

What is the perimeter in meters of the park?

Write your answer in the answer grid.

18 This question has two parts.

A truck uses 1 gallon of diesel for every 6 miles traveled. The graph shows the amount of diesel left in the tank, x gallons, after traveling y miles.

Diesel Consumption of a Truck
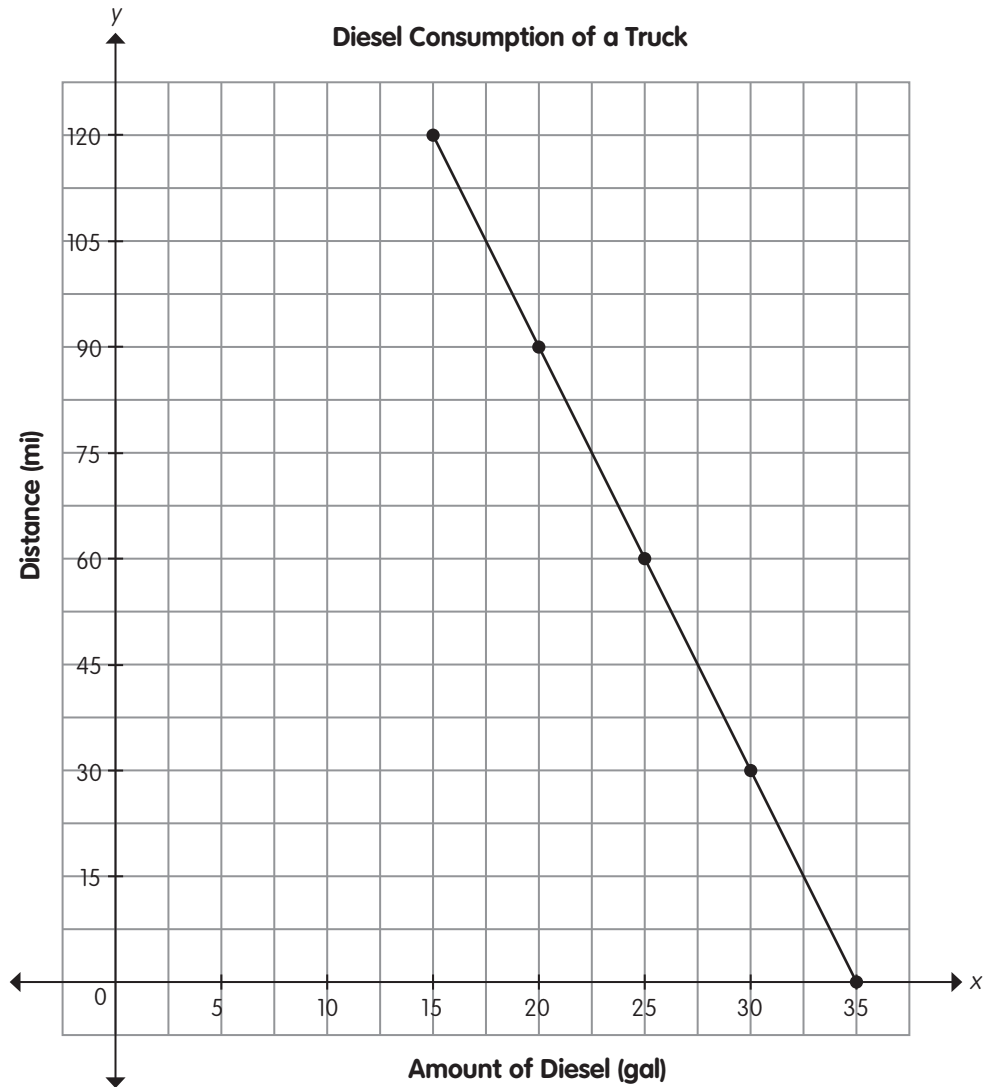
Part A

How many gallons of diesel are left after the truck has traveled 75 miles?

Write your answer in the answer grid.

Part B

After the truck has traveled 120 miles, how much farther in miles can the truck travel before it runs out of diesel?

Write your answer in the answer grid.

19 The ratio of the length to the width to the height of an open rectangular box is 12 : 3 : 5. The length of the box is 27 inches more than the width. What is the surface area of the open box?

Write your answer and your work or explanation in the space below.

Section C   Constructed Response

20 The figure below shows two overlapping squares. The ratio of the area of the small square to the area of the big square is 1 : 4. The shaded area is $\frac{1}{16}$ of the area of the big square. The total area of the unshaded regions is 54 square meters. What is the area of the small square?
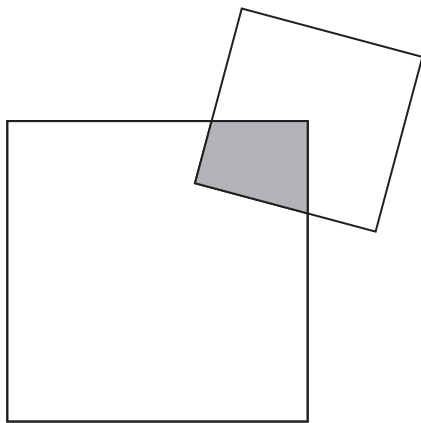
Write your answer and your work or explanation in the space below.

21 This question has two parts.

A student filled a rectangular box with one-inch cubes to find the volume in cubic inches of the box.
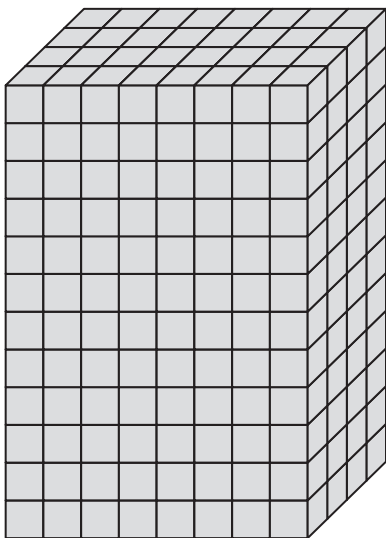
Below shows the student's work.

Student's Work

- I packed my box full of cubes. Each cube has a volume of 1 cubic inch.
- I counted 32 cubes in the top layer.
- Since there are 11 layers of cubes below the top layer, I solved 32 × 11 = 352. So, there are 352 cubes.
- I concluded that the volume of my box is 352 cubic inches.

Part A
- Explain why the student's reasoning is incorrect.
- Provide the correct volume in cubic inches of the box.

Write your explanation and answer in the space below.

Part B

A second box also has a base area of 32 square inches, but it has a volume of 480 cubic inches. What is the height in inches of the second box?

Write your answer in the answer grid.

22 This question has four parts.

Tree A is 200 centimeters tall. It grows 40 centimeters taller in 2 months.

Tree B is 240 centimeters tall. It grows 60 centimeters taller in 5 months.

The diagram below shows the relationship between the heights of two trees.
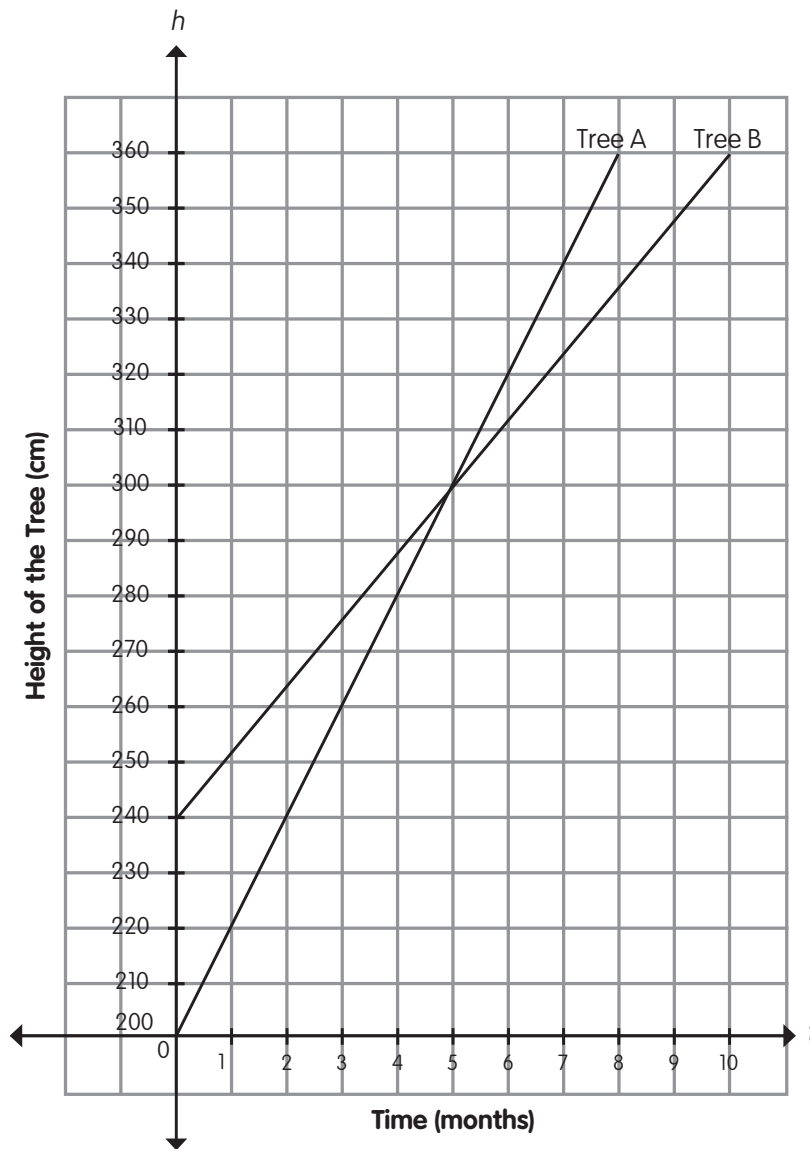
Part A

Which tree grows faster every month?

Write your answer and explanation in the space below.

Part B

What is the height in centimeters of Tree A after 7 months?

Write your answer in the answer grid.

Part C

If Tree B is at least 350 centimeters tall, how many months have passed? Express your answer in the form of an inequality in terms of t, where t is a whole number.

Explain your answer in the space below.

Part D

Tree A will be as tall as Tree B after k months, where k is a whole number.
What is the value of k?

Explain how you obtained the value of k in the space below.

Assessment Guide
Cumulative Review 5

Section A   Multiple-Choice Questions

(10 × 2 = 20 points)

1 A group of students was surveyed to find out their favorite gelato flavor. The table shows the results of the survey.

Flavor	Tally	Frequency
Chocolate	/// /// /// ///	18
Strawberry	/// /// /// /	16
Vanilla	/// ///	10
Mango	/// //	7
Cookies and Cream	/// /// /// /// ////	24
Earl Grey	///	5

How many more students like chocolate and strawberry than mango and earl grey?

A 29

B 27

C 22

D 11

2 The mean of seven numbers 19, 14, 25, 11, 18, 22, and x is 18. What is the value of x?

A 35

B 17

C 9

D 7

3 The data set shows the weights in kilograms of eight potted plants.

1.4, 0.8, 1.7, 2.1, 1.4, 2.5, 1.3, 0.9

What is the median weight in kilograms?

A 1.4

B 1.55

C 1.75

D 2.5

4 The table shows the number of sit-ups that a group of students can do in one minute.

Number of Sit-ups	24	26	28	30	32	34	36
Number of Students	5	11	9	14	8	9	2

What is the mode?

A 36

B 34

C 30

D 28

5 The data set shows the scores of a basketball team in a series of games.

67	58	72	98
104	83	55	76
100	79	88	62
110	91	77	86

What is the interquartile range?

(A) 14.5

(B) 25

(C) 39.5

(D) 82

6 The dot plot shows the results of a survey on the number of laptops each family has.

Number of Laptops
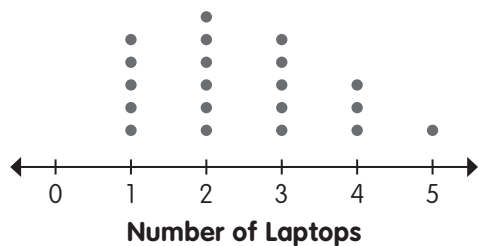
How many families were surveyed?

(A) 19

(B) 20

(C) 35

(D) 49

7 The histogram shows the number of bottles recycled by 30 households in a month.

Recycled Bottles

Which statements are true?

Choose **all** that apply.

(A) More than 50% of the households recycled more than 17 bottles.

(B) $23\frac{1}{3}$% of the households recycled 6 to 11 bottles.

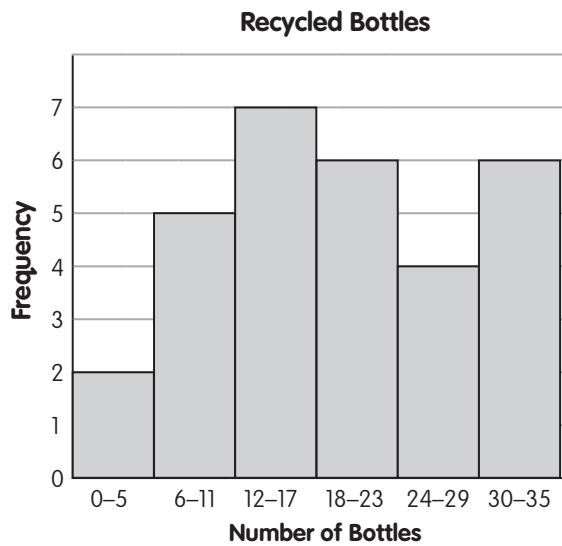(C) The number of households that recycled 6 to 11 bottles is the same as the number of households that recycled 24 to 29 bottles.

(D) The number of households that recycled 18 to 23 bottles is the same as the number of households that recycled 30 to 35 bottles.

(E) The number of households that recycled 24 to 29 bottles is twice the number of households that recycled 0 to 5 bottles.

8 The box plot summarizes the number of cups of coffee sold at a café for one week.

Number of Cups of Coffee
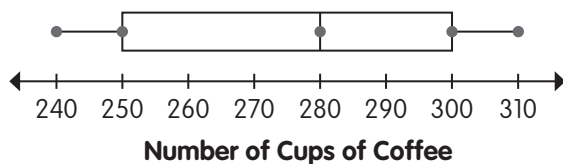
Which statements are **not** true?

Choose **all** that apply.

(A) The upper quartile is 310 cups of coffee.

(B) The range is 50 cups of coffee.

(C) The lower quartile is 250 cups of coffee.

(D) The mean is 280 cups of coffee.

(E) The interquartile range is 50 cups of coffee.

9 The data set shows the lengths in centimeters of five pieces of wire.

37.2, 28.5, 43.6, 19.8, 30.7

What is the mean absolute deviation of the data set?

(A) 6.752

(B) 31.96

(C) 32.86

(D) 33.76

10 The table shows the results of a survey on the number of pets 75 families have.

Number of Pets	0	1	2	3	4	5	6
Number of Families	4	13	25	18	7	5	3

What is the median number of pets each family has?

A 1

B 2

C 3

D 4

Section B   Short Answer Questions

(11 to 19 : 2 points each)

11   The data set shows the number of books read by a group of students in a month.

4	7	6	11	5
6	3	8	2	1
0	9	0	1	4
3	12	5	7	2
5	9	10	3	2
6	8	4	1	7

Tabulate the data set.

Number of Books Read	Tally	Frequency
0–4		
5–8		
9–12		

12 This question has two parts.

Mr. Evans took a survey to find out the number of hours the students in his class spent on completing their science project. The table shows the results of the survey.

Number of Hours	25	30	35	40	45	50	55	60
Number of Students	2	0	7	6	12	4	5	1

Part A

Find the range of the data set.

Write your answer in the answer grid.

Part B

Find the interquartile range of the data set.

Write your answer in the answer grid.

13 A group of 15 friends went on a fishing trip. The table shows the number of fish caught by each of them.

Number of Fish	0	1	2	3	4	5	6
Frequency	2	1	2	4	1	3	2

Use a dot plot to represent the data.

Show your drawing in the space below.

14　The table shows the number of vehicles observed at one junction at different times of the day.

Time	4–7:59 A.M.	8–11:59 A.M.	12–3:59 P.M.	4–7:59 P.M.	8–11:59 P.M.
Frequency	120	200	260	180	80

Draw a histogram to represent the data.

Show your drawing in the space below.

15 The data set shows the run time in minutes of seven movies.

129, 85, 100, 214, 175, 202, 98

Draw a box plot to represent the data.

Show your drawing in the space below.

16 The data set shows the thickness in centimeters of five books.

27.1, 18.4, 23.6, 32.5, 19.3

Calculate the mean absolute deviation of the data set. Round your answer to the nearest hundredth.

Write your answer in the answer grid.

The dot plot shows the weights in pounds of watermelons to be sold at a grocery store.

Weight (lb)

- What is the median weight?
- If a customer bought three watermelons each weighing 24 pounds from the grocery store, how would the median weight be affected? Explain briefly.

Write your answer and explanation in the space below.

18 400 tickets to a concert were sold. The table shows the prices of the tickets and the number of tickets sold at each price.

Price ($)	50	80	100	120	160	220	250
Number of Tickets	42	58	80	x	60	35	y

If the mode is $120, list four possible values for the pair of numbers (x, y).

Explain your answers in the space below.

19 In a race, the mean time for nine runners was 25.3 seconds. Four of the runners have a mean time of x seconds. The mean time for the other five runners was 28.18 seconds. What is the value of x?

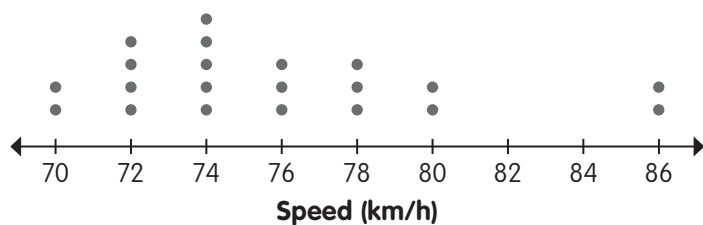Write your answer and your work or explanation in the space below.

Section C   Constructed Response

(**20** : 3 points ; **21**: 4 points ; **22**: 3 points)

20 This question has three parts.

Part A

The dot plot shows the speed of 21 cars on Highway A.

Speed (km/h)

What is the median speed in kilometers per hour of the cars on Highway A?

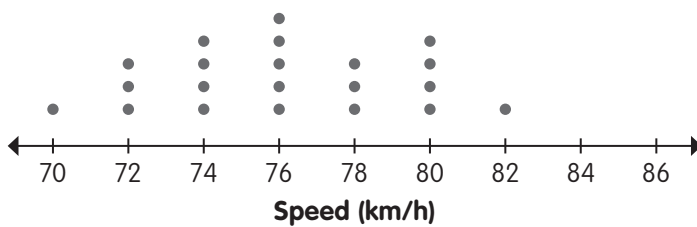Write your answer in the answer grid.

Part B

Maya claims that the mean speed is greater than the median speed of the cars on Highway A.
Do you agree?

Explain your answer in the space below.

Part C

The dot plot shows the speed of another 21 cars on Highway B.

Speed (km/h)

Compare the dot plots for highways A and B.

- Which highway has a smaller mean absolute deviation?
- What does a smaller mean absolute deviation tell us in this context?

Write your answer and explanation in the space below.

21 This question has three parts.

The table shows the number of beads Grace used to make 55 bracelets.

Number of Beads	5	6	7	8	9	10	11	12
Number of Bracelets	3	7	11	4	10	12	6	2

Part A

Find the mode of the number of beads used in each bracelet.

Write your answer in the answer grid.

Part B

Find the mean and median number of beads used in each bracelet. Round your answers to the nearest whole number if necessary.

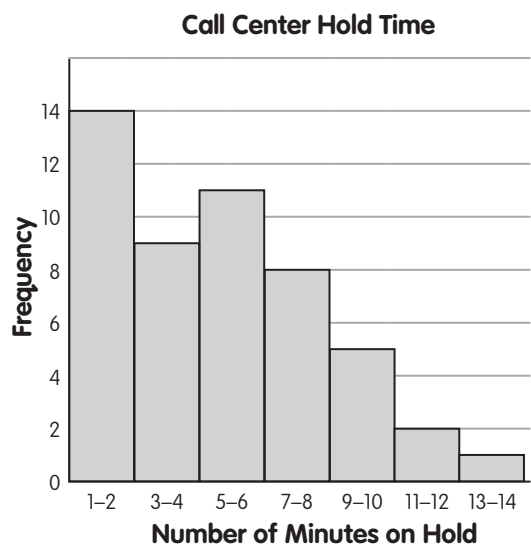Write your answers in the space below.

Part C

If for one of the 55 bracelets, Grace used 13 beads instead of 10, what would the mean number of the 55 bracelets be? Round your answer to the nearest whole number if necessary.

Write your answer and your work or explanation in the space below.

22 This question has three parts.

A call center carried out a survey to find out how long its customers are willing to wait on the line before being attended to. The histogram shows the results of the survey.

Call Center Hold Time

Part A

By observing the shape of the histogram, what do you think is a likely measure of center of the data distribution?

Explain your answer in the space below.

Part B

A similar survey done by another call center shows that 75% of the customers are willing to be put on hold for up to 6 minutes.

Number of Minutes on Hold	1–2	3–4	5–6	7–8	9–10	11–12	13–14
Frequency	x	y	z	11	6	3	0

Find the mean of x, y, and z.

Write your answer and your work or explanation in the space below.

Part C

If the number of customers who are willing to be put on hold for 1 to 2 minutes is 12 more than the number of customers who are willing to put on hold for 3 to 6 minutes, what is the value of x?

Write your answer and your work or explanation in the space below.