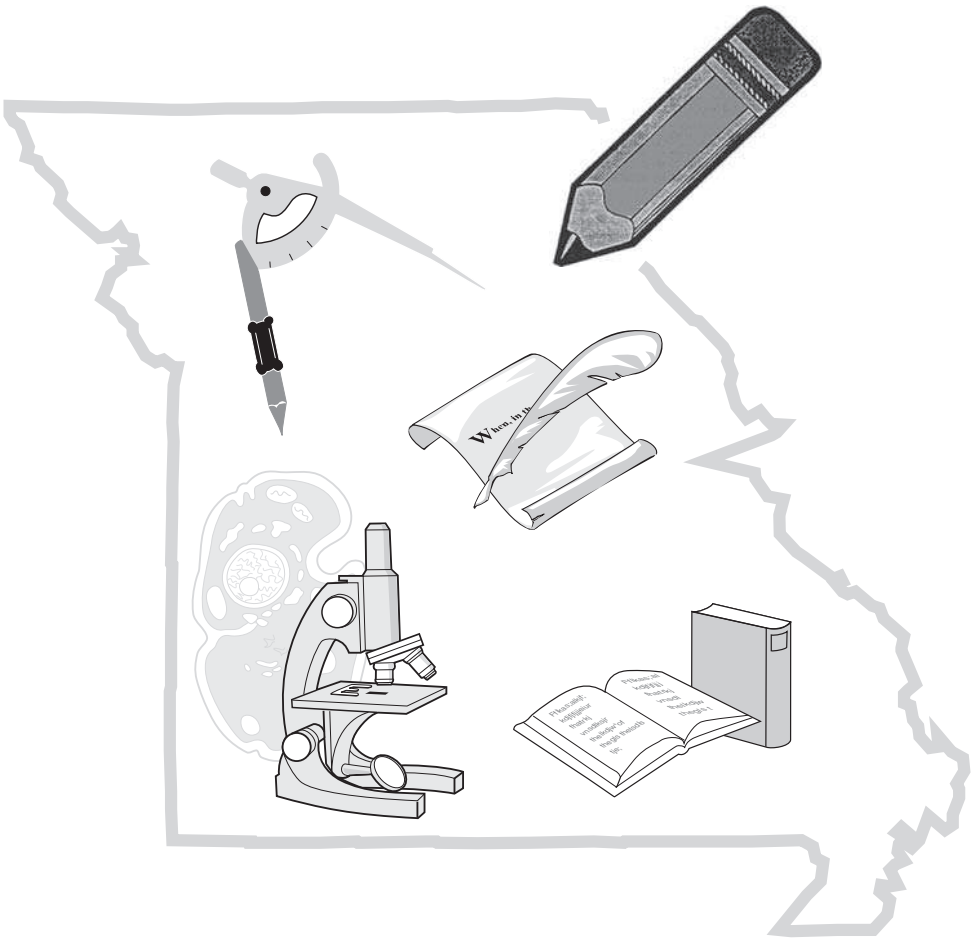
Name: _____

District/School: _____

Missouri Assessment Program

Released Practice Form
Grade 6
Mathematics



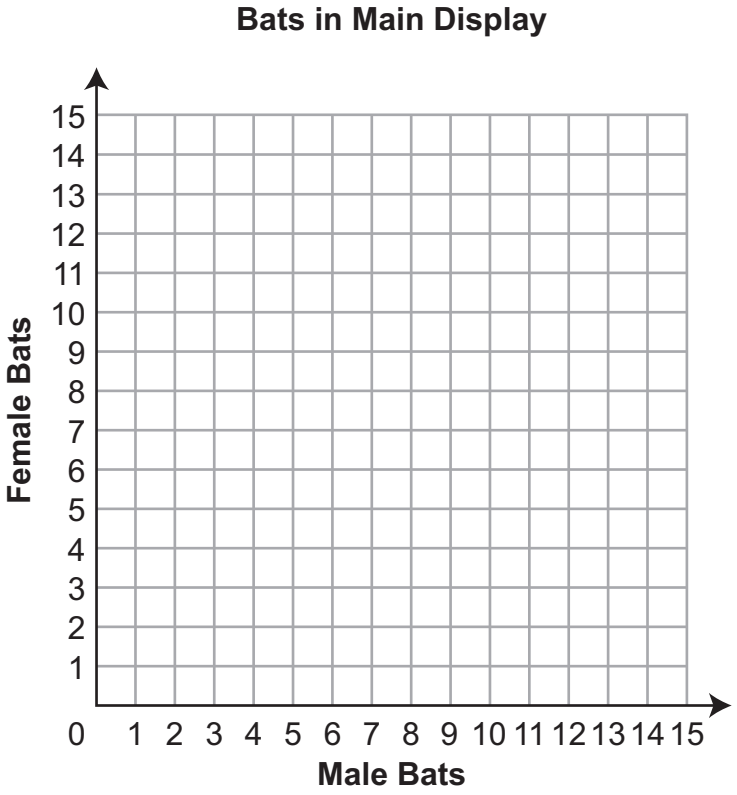
Missouri Department of Elementary
and Secondary Education

1. A zoo has male and female bats. The zoo always keeps the same ratio of male to female bats in their main display. The table shows the numbers of male and female bats in the zoo's main display at various times.

Bats in Main Display

Males	Females
3	4
6	8
9	12

Plot the three pairs of values from the table on the coordinate grid.



2. Select the **two** numbers equivalent to 0.042.

A. 0.42%

B. 4.2%

C. 42%

D. $\frac{42}{1000}$

E. $\frac{42}{100}$

3. A charity needs more than 15 volunteers to help run a fundraising event. Which inequality could be used to represent the number of volunteers, v, needed for the event?

   A. $v < 15$

   B. $v \leq 15$

   C. $v > 15$

   D. $v \geq 15$

4. An expression is shown.

   $60 + 84$

   The expression is rewritten as $6(x + y)$. What is the value of $x + y$?

   A. 10

   B. 24

   C. 74

   D. 94

5. Carson's favorite band is playing 5 concerts. The ticket prices, in dollars, for each of the 5 concerts are listed below.

   14, 14, 16, 20, 21

   What is the mean absolute deviation of the ticket prices for the 5 concerts?

6. What is the distance, in units, between the points (2, 3) and (2, $^{-}$6) on a coordinate plane?

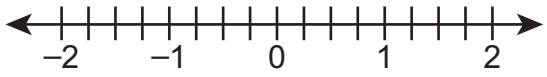
   A. 3

   B. 5

   C. 9

   D. 11

7. Plot a point to show the location of $-1\frac{3}{4}$ on the number line.



8. Select the **three** equations.

   A. $2x + 1$

   B. $x = 7$

   C. $3x - 5$

   D. $\frac{7x}{15}$

   E. $10x = 2$

   F. $5 = 3 - 2x$

9. The ratio of people to books in a classroom is 10:4. What is the unit rate of people per book?

   A. 0.4

   B. 0.6

   C. 2.5

   D. 5.2

10. Which graph represents the solution set for the inequality $x \geq 9$?

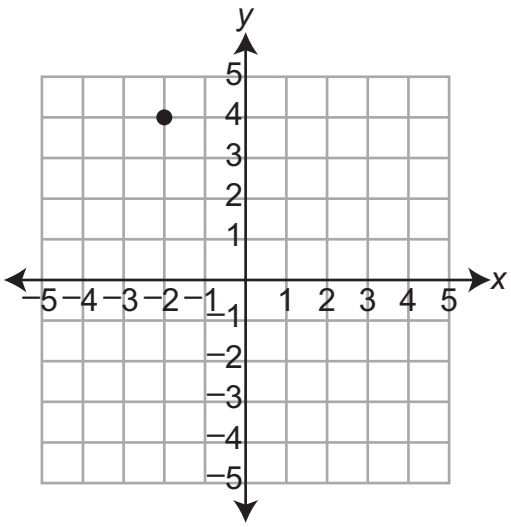
   A. 

   B. 

   C. 

   D. 

11. The point ($^{-}2$, 4) is plotted on the coordinate plane.



The point is reflected across the *y*-axis. What are the coordinates of the reflected point?

A. ($^{-}2$, $^{-}4$)

B. ($^{-}2$, 4)

C. (2, $^{-}4$)

D. (2, 4)

12. Which number is equivalent to $\frac{7}{12} \div \frac{8}{3}$?

A. $\frac{7}{32}$

B. $\frac{9}{14}$

C. $\frac{14}{9}$

D. $\frac{32}{7}$

Go on to the next page.

13. The length of a certain rectangle is 5 units more than the width. Write an equation that represents the length, l, in terms of the width, w, for this rectangle.

14. Four teams participate in a chess tournament each year. Each team consists of one adult and one child. Each team records the difference in the number of wins by the adult and by the child from last year to this year, as shown in the table.

Team	Adult	Child
	Difference in Wins Between Years	Difference in Wins Between Years
Team A	$^{-}1$	1
Team B	1	1
Team C	1	$^{-}2$
Team D	$^{-}1$	$^{-}2$

Each team creates an ordered pair to show the total change in the number of wins from last year to this year.

- The x-coordinate of the ordered pair represents the change in the number of wins for the adult on the team.
- The y-coordinate of the ordered pair represents the change in the number of wins for the child on the team.

Each team's ordered pair ends up in one of the four quadrants. Write the name of each team under the quadrant that has that team's ordered pair.

Quadrant I	Quadrant II	Quadrant III	Quadrant IV

Go on to the next page.

15. An electrician has 42.3 meters of wire to use on a job. On the first day, she uses 14.742 meters of the wire. How many meters of wire does she have remaining after the first day?

    A. 27.442
    B. 27.558
    C. 27.642
    D. 27.658

16. Laura uses the inequality $\frac{1}{2}x - 7 > 10$ to determine the number of pillows, x, she needs to sell at the craft fair to make a profit. What is the **least** number of pillows Laura needs to sell to earn a profit?

    A. 33
    B. 34
    C. 35
    D. 36

17. Each of the pairs of values in the table has the same ratio.

x	14	21	28
y	4		8

    What is the missing value in the table?

18. Scott earns $15 for each birdhouse that he sells. He uses the expression $15x$ to calculate his earnings, in dollars. What is the meaning of the variable x in Scott's expression?

    A. the number of birdhouses he sells
    B. the total amount of money he earns
    C. the amount of money he earns per birdhouse
    D. the number of hours it takes to make each birdhouse

19. A soccer team gained 3 new players after 7 players left the team. Which expression describes the change in the number of players on the team?

    A. $(^{-}7) + 3$

    B. $7 + 3$

    C. $^{-}7 - 3$

    D. $7 + (^{-}3)$

20. A hardware store sold *h* hammers in February. The hardware store sold 5 less than 2 times as many hammers in June as it did in February. Write an expression the hardware store could use to represent the number of hammers it sold in June.

21. Benny and Kiara each sell comic books.

    - Benny sells 8 comic books for $6.00.
    - Kiara sells 10 comic books for $7.00.

    Which statement correctly explains who sells comic books at a lower unit rate?

    A. Benny sells comic books at a lower unit rate because $6.00 is less than $7.00.

    B. Benny sells comic books at a lower unit rate because $8 \div 6 = 1.33$ is less than $10 \div 7 = 1.43$.

    C. Kiara sells comic books at a lower rate because Benny's 8 comic books would sell for less than $6.00 if he sold them at the same rate as Kiara.

    D. Kiara sells comic books at a lower rate because the difference between the price for which Kiara sells 10 comic books and the price for which Benny sells 8 comic books is less than $2.00.

22. An expression is shown below.

    $4(6 + 3) + 4$

    Select the **two** expressions that are equivalent to the given expression.

    A. $4(6 + 3 + 1)$

    B. $4(6 + 3 + 4)$

    C. $12(2 + 1) + 4$

    D. $12(2 + 3) + 4$

    E. $24 + 3(2)$

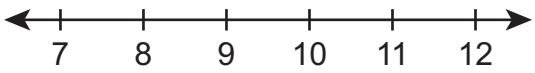
    F. $24 + 3 + 4$

23. Emily runs a lawn-mowing business. She records the number of lawns her business mows each day for 10 days. Her data are shown.

    7, 12, 9, 9, 8, 9, 11, 11, 12, 9

    Create a dot plot to represent Emily's data.

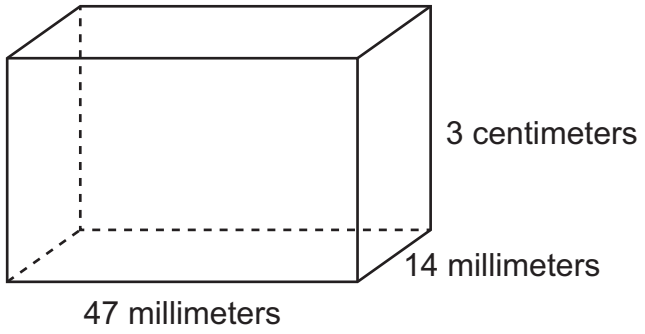
Emily's Data



Lawns Mowed

STOP.

1. A rectangular prism is shown.



What is the volume, in cubic **millimeters**, of the rectangular prism?

2. Dominic works at a supermarket. He weighs some cheese, in pounds, for a customer. Then, he removes some of the cheese from the scale and weighs the remaining cheese. The equation below represents this situation.

$$1.65 - x = 1.50$$

What is the value of x, and what does it most likely represent?

A. The value of x is 0.15, and it represents the amount of cheese, in pounds, Dominic removes from the scale.

B. The value of x is 0.15, and it represents the amount of cheese, in pounds, that the customer purchases from Dominic.

C. The value of x is 3.15, and it represents the amount of cheese, in pounds, Dominic removes from the scale.

D. The value of x is 3.15, and it represents the amount of cheese, in pounds, that the customer purchases from Dominic.

3. Ashley needs a piece of wire that is 12.5 feet long for a project. What is the length, in **meters**, of the piece of wire Ashley needs for her project?

(1 inch = 2.54 centimeters)

4. An expression is shown.

   $6(2 + 3)^2 - 1$

   What is the value of the expression?

   A. 20

   B. 59

   C. 149

   D. 899

5. There are 12 fifth-grade students and 18 sixth-grade students in a mixed-grade class. What is the ratio of fifth-grade students to **all** the students in the class?

   A. 2:3

   B. 2:5

   C. 3:2

   D. 5:2

6. Jason buys 2 sandwiches for $12. He uses the equation shown to find the cost, x, of each sandwich.

   $$2x = 12$$

   What is the cost of each sandwich?

   A. $6

   B. $10

   C. $14

   D. $24

Go on to the next page.

7. Select the **three** statistical questions.

   A. What is your age?

   B. What time does school start?

   C. How many pets does your friend have?

   D. How many siblings does each student in your class have?

   E. What is the eye color of each person in your after-school club?

   F. How many servings of fruit does each person in your school eat at lunch?

8. There were 12 people on a bus. At the first stop, 4 people got off the bus and 6 people got on the bus. Which expression could be used to find the number of people on the bus after the first stop?

   A. $12 + (^{-}6) + 4$

   B. $12 + (^{-}6) + (^{-}4)$

   C. $12 + 6 + 4$

   D. $12 + 6 + (^{-}4)$

9. The table shows the relationship between two variables, *x* and *y*. The same rule is used to create each row in the table.

x	***y***
1	3
2	11
3	19
4	27

   Which statement about the table is true?

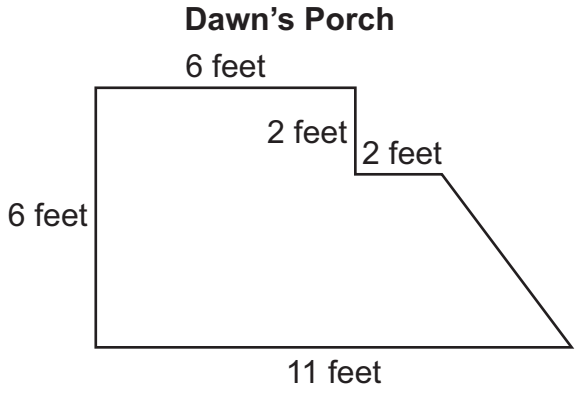
   A. As the *x*-values increase, the difference between consecutive *y*-values increases.

   B. As the *x*-values increase, the difference between consecutive *y*-values decreases.

   C. As the *x*-values increase, the difference between the *y*-value and *x*-value in each row increases.

   D. As the *x*-values increase, the difference between the *y*-value and *x*-value in each row decreases.

10. The dimensions of Dawn's porch are shown.



What is the area, in square feet, of Dawn's porch?

A. 32

B. 42

C. 46

D. 50

11. Danny cuts blocks of wood from a log. Each block of wood is a square prism. Danny writes the expression $2x^2 + 4xy$ to represent the surface area of each block of wood. In Danny's expression,

- x represents the length, in inches, of the base of the block of wood, and
- y represents the height, in inches, of the block of wood.

Match each length and height pair with the corresponding surface area for a block of wood with those measurements. Draw a line to make a match.

length: 1.5 inches; height: 5.75 inches	28.875 square inches
length: 1.75 inches; height: 3.75 inches	32.375 square inches
length: 2.75 inches; height: 1.25 inches	39 square inches

Go on to the next page.

12. Of the 40 students in Ms. Carr's class, 87.5% live less than 10 miles from school. How many of the students in Ms. Carr's class live less than 10 miles from school?

13. Each student in Anthony's grade writes a book report. Anthony surveys some of the students about the length, in pages, of their book reports. He makes the table to show his results.

Book Report Survey Results

Pages in Book Report	Number of Students
3	2
4	12
5	19
6	6
7	1

How many students did Anthony survey?

A. 15

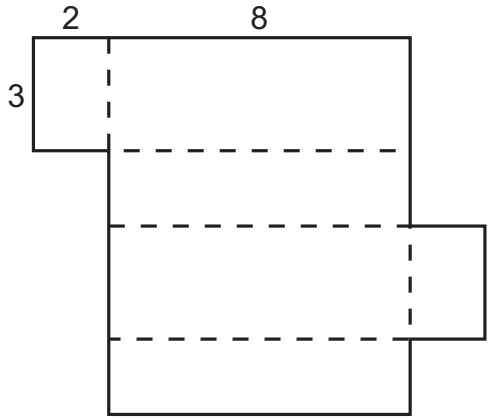
B. 25

C. 40

D. 65

14. The net of a rectangular prism is shown.

Net of Rectangular Prism



What is the surface area, in square units, of the rectangular prism?

A. 44

B. 48

C. 60

D. 92

15. An expression is shown.

$4 - 3x^2 + 5x$

Select the **two** statements about the expression that are true.

A. The expression has six terms.

B. The 5 is an exponent in a term.

C. One of the terms is a constant.

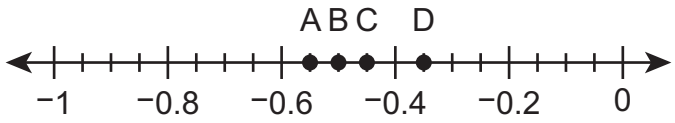
D. The x is a variable in two terms.

E. The coefficient of one of the terms is 2.

16. Jesse's new pool holds 1,624 gallons of water. He can fill the pool at a rate of 112 gallons per hour. How many hours will it take Jesse to fill his pool?

Go on to the next page.

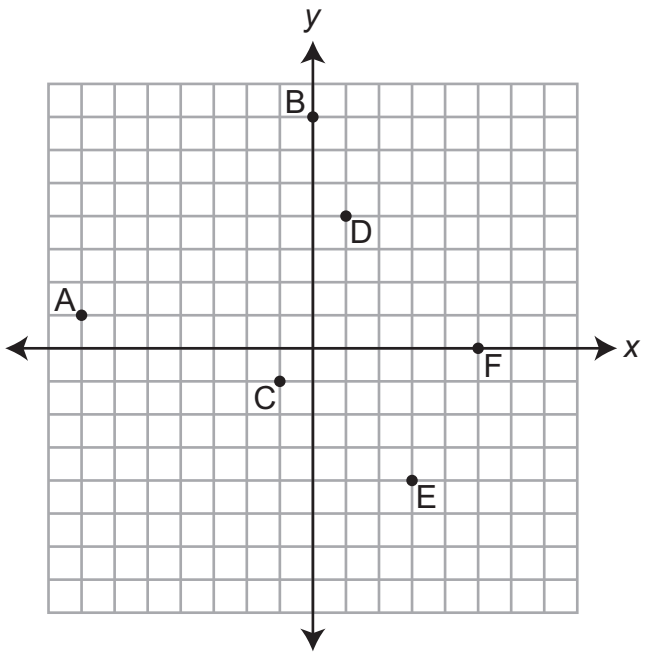
17. Points A, B, C, and D are plotted on the number line.



Which point is plotted at $^{-}0.45$?

A. A
B. B
C. C
D. D

18. Points A through F are shown on the coordinate plane.



Select the **two** points that have a negative *y*-coordinate.

A. point A
B. point B
C. point C
D. point D
E. point E
F. point F

19. Each of the pairs of values in the table has the same ratio.

x	6	14	*k*	28
y	9	*m*	30	42

What are the values of *k* and *m*?

A. *k* = 16 and *m* = 28

B. *k* = 20 and *m* = 21

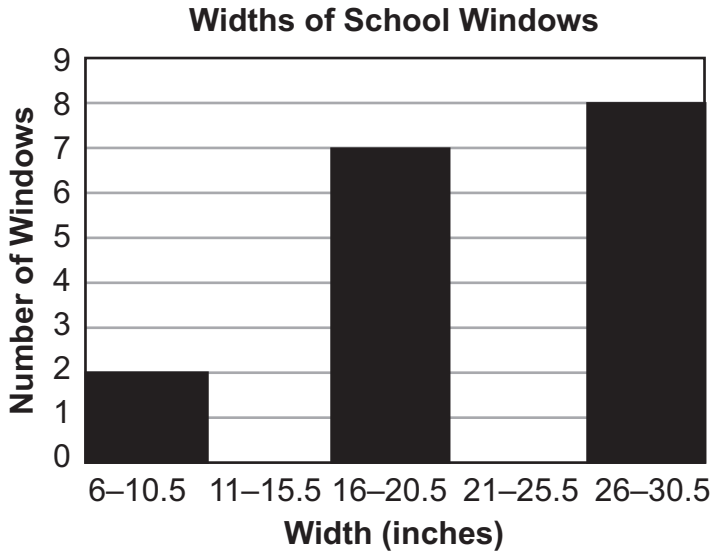
C. *k* = 22 and *m* = 18

D. *k* = 27 and *m* = 17

20. Clark measured the widths, rounded to the nearest half inch, of 21 different windows in his school. He is creating a histogram to display his results. He knows the following pieces of information:

- There is at least 1 window in each interval.
- The median width is 22 inches.

Complete Clark's histogram by adding the missing data.



21. What is the solution set for the inequality 54 < 18*x*?

A. *x* > 3

B. *x* < 3

C. *x* > 36

D. *x* < 36

Go on to the next page.

22. Jackson and Lamont each write down the date they were born. (For example, a person born on September 17 would write down “17.”) They notice the following things about the two different numbers.

    - Both dates have 24 as a multiple.
    - The larger date is **not** a multiple of the smaller date.
    - The greatest common factor of the two dates is 4.

    What is the larger of the two dates?

23. Which expression has the greatest value?

    A. $|^{-}10|$

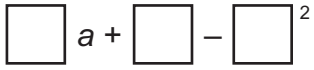
    B. $|^{-}3|$

    C. $|6|$

    D. $|9|$

STOP.

1. An expression with three missing parts is shown. Write a whole number from 1 to 9 in each box to create the expression with the greatest value when $a = 5$. Each whole number can only be used once.



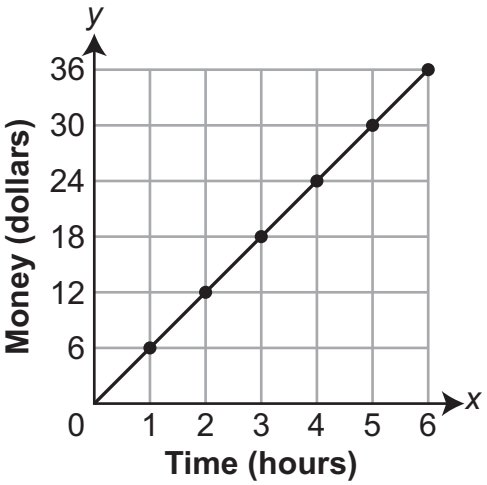
1 2 3 4 5 6 7 8 9

Explain how you know the expression has the greatest value. Be sure to include why you chose the number you did for each box.

Go on to the next page.

2. Julia earns \$3 for every $\frac{1}{2}$ hour she babysits. She attempts to make three representations of her babysitting earnings. Her representations are shown below.

Representation 1



Representation 2

Time (hours)	Money (dollars)
1	3
2	6
3	9
4	12

Representation 3

$y = 6x$

For **each** representation, determine whether it correctly shows Julia's babysitting earnings. Explain or show your work to support the accuracy or inaccuracy of each representation. What is Julia's hourly rate, in dollars per hour?

STOP.

Math – Grade 6
Scoring Guide and Rubric

Session 1
All items worth 1 point

Item	Type	MLS	Answer
1	Technology Enhanced (Online) Constructed Response (Paper)	6.RP.A.3.a	Plot points at: (3,4), (6,8), (9,12)
2	Multi-Select Response	6.NS.C.8	B and D
3	Multiple Choice	6.EEI.B.8.a	C
4	Multiple Choice	6.NS.B.4.b	B
5	Short Answer	6.DSP.B.5.c	2.8
6	Multiple Choice	6.GM.A.3.c	C
7	Technology Enhanced (Online) Constructed Response (Paper)	6.NS.C.6.a	Mark one tick mark to the right of -2
8	Multi-Select Response	6.EEI.A.1	B, E, F
9	Multiple Choice	6.RP.A.2	C
10	Multiple Choice	6.EEI.B.8.b	D
11	Multiple Choice	6.GM.A.3.b	D
12	Multiple Choice	6.NS.A.1.a	A
13	Short Answer	6.EEI.C.9.a	$l = w+5$ or equivalent equation
14	Technology Enhanced (Online) Constructed Response (Paper)	6.GM.A.3.a	From left to right: Team B, Team A, Team D, Team C
15	Multiple Choice	6.NS.B.3	B
16	Multiple Choice	6.EEI.B.4	C
17	Short Answer	6.RP.A.3.a	6
18	Multiple Choice	6.EEI.A.2.e	A
19	Multiple Choice	6.NS.C.5	A
20	Short Answer	6.EEI.A.2.d	2h-5 or equivalent expression
21	Multiple Choice	6.RP.A.3.b	C
22	Multi-Select Response	6.EEI.A.3	A and C
23	Technology Enhanced (Online) Constructed Response (Paper)	6.DSP.B.4.a	Four dots above 9, two dots above 11 and 12, one dot above 7 and 8 (All correct to receive credit)

Math – Grade 6
Scoring Guide and Rubric

Session 2

All items worth 1 point

Item	Type	MLS	Answer
1	Short Answer	6.GM.A.2.b	19,470
2	Multiple Choice	6.EEI.B.6	A
3	Short Answer	6.RP.A.3.d	3.81
4	Multiple Choice	6.EEI.A.2.c	C
5	Multiple Choice	6.RP.A.1	B
6	Multiple Choice	6.EEI.B.7	A
7	Multi-Select Response	6.DSP.A.1	D, E, F
8	Multiple Choice	6.NS.C.5	D
9	Multiple Choice	6.EEI.C.9.b	C
10	Multiple Choice	6.GM.A.1	D
11	Technology Enhanced (Online) Multi-Select Response (Paper)	6.EEI.A.2.b	L 1.5/H 5.75 = 39 sq. inches, L 1.75/H 3.75 = 32.375 sq. inches, L 2.75/H 1.25 = 28.875 sq. inches
12	Short Answer	6.RP.A.3.c	35
13	Multiple Choice	6.DSP.B.5.a	C
14	Multiple Choice	6.GM.A.4.b	D
15	Multi-Select Response	6.EEI.A.2.a	C and D
16	Short Answer	6.NS.B.2	14.5
17	Multiple Choice	6.NS.C.6.a	C
18	Multi-Select Response	6.GM.A.3.a	C and E
19	Multiple Choice	6.RP.A.3.a	B
20	Technology Enhanced (Online) Constructed Response (Paper)	6.DSP.B.4.a	11-15.5: Shade to 1, 21-25.5: Shade to 3
21	Multiple Choice	6.EEI.B.5	A
22	Short Answer	6.NS.B.4.a	12
23	Multiple Choice	6.NS.C.7	A

Math – Grade 6
Scoring Guide and Rubric

Session 3

Item	Type	MLS	Answer
1	Performance Event	6.EEI.A	**Exemplary Response** $9a + 8 - 1^2$ The first box has to be nine to have the greatest product. The second box has to be eight to add the greatest remaining value. The last box has to be one to subtract the least value. **Scoring** **4 points available** <u>3 points</u>: The student explains how they know the expression has the has the greatest value, including why the number in each box was chosen. <u>1 point</u>: The student creates the correct expression.
2	Performance Event	6.EEI.C	**Exemplary Response** The graph (Representation 1) correctly shows Julia's babysitting earnings because the graph increases $3 for every 1/2 hour. The table (Representation 2) does not correctly show Julia's babysitting earnings because the table increases $3 for every one hour, rather than for every 1/2 hour. The equation (Representation 3) correctly shows Julia's babysitting earnings because when x (hours) = 1/2 then y (money) = $3. Julia's hourly rate is $6 per hour. **Scoring** **4 points available** <u>3 points</u>: The student supports their identification of each representation, including Julia's hourly rate ($6/hr). <u>1 point</u>: The student correctly identifies each representation as correctly or incorrectly showing Julia's babysitting earnings.