## Assessment 3

## Calculator-Active Section

Answer questions 1-42 on your answer sheet. You may use a calculator.

1 Which expression best represents the opposite of the opposite of $8 \frac{1}{4}$ ?
A $-\left(+8 \frac{1}{4}\right)$
B $\quad-\left(-8 \frac{1}{4}\right)$
C $\quad+\left(-8 \frac{1}{4}\right)$
D $\quad+\left(+8 \frac{1}{4}\right)$

2 A rectangle is 8 feet long and $(7+x)$ feet wide. Which expression represents the area of the rectangle in square feet?

A $15+x$
B $56+x$
C $56+7 x$
D $56+8 x$

3 An online retailer charges $\$ 30$ for 12 cans of tennis balls. A tennis coach orders 100 cans of tennis balls for her tennis team. How much will the coach pay for the tennis balls?

A $\$ 220$
B $\quad \$ 250$
C $\$ 280$
D $\$ 300$

4 In baseball, home plate is a pentagon as shown below.


What is the area of home plate?
A 72.25 square inches
B $\quad 144.50$ square inches
C 216.75 square inches
D 289 square inches

5 The temperature in Salt Lake City was $-10.6^{\circ} \mathrm{C}$. Which absolute value equation best describes how many degrees the temperature was below $0^{\circ} \mathrm{C}$ ?

A $\quad|-10.6|=-10.6$
B $\quad|-10.6|=-10$
C $\quad|-10.6|=10$
D $\quad|-10.6|=10.6$

6 Consider the statement below.
"Fewer than 20 students participated in a drawing competition."

Which number line best represents the statement?


C


D


7 The floor of Catelyn's bedroom has an area of $137 \frac{1}{2}$ square feet. The walls are $8 \frac{1}{2}$ feet tall. What is the volume of Catelyn's bedroom?

A $1,168 \frac{3}{4} \mathrm{ft}^{3}$
B $\quad 1,164 \frac{1}{2} \mathrm{ft}^{3}$
C $\quad 1,100 \mathrm{ft}^{3}$

D 1,096 $\mathrm{ft}^{3}$

8 Which expression is equal to $p+p+q+q+q+r+r$ ?
A $2 p+2 q+2 r$
B $\quad 2 p+3 q+2 r$
C $\quad 2 p+3 q+r$
D $2 p+3 q+3 r$

9 The line plot below shows the number of minutes it took Greg to get to work each morning for the last 27 days.


Which statement best describes the data?
A About half the time it took Greg longer than 57 minutes to get to work.
B The greatest amount of time it took to him to get to work was 60 minutes.
C The most common amount of time it took Greg to get to work was 59 minutes.
D The times were evenly distributed between 52 and 62 minutes.

10 Ricky is filling an 8 -inch by 4 -inch by $4 \frac{1}{2}$-inch rectangular box with cubes. The cubes come in two different sizes, 1 cubic inch and $\frac{1}{8}$ cubic inch. He uses some of each size cube and he packs the box so there are no gaps. What is the least number of the smaller cubes that Ricky can use?

A 32
B 64
C 128
D 256

11 A large serving of soup from a take-out restaurant is $\frac{4}{5}$ liter. The restaurant has 3 liters of soup. The diagram below models the number of servings of soup.


How many servings of soup does the restaurant have?
A $2 \frac{1}{5}$
B $2 \frac{2}{5}$
C $3 \frac{3}{5}$
D $3 \frac{3}{4}$

12 For which of the following values of $x$ is the equation $x+35=80$ true?

$$
25,35,45,55,65
$$

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

13 Zane began this table to show equivalent ratios for $x$ and $y$, but realized that he made a mistake. He wants to change one number to make the table correct.

| $\boldsymbol{x}$ | $\boldsymbol{y}$ |
| :---: | :---: |
| 6 | 48 |
| 8 | 96 |

Which change could Zane not make?
A Change 6 to 4.
B Change 8 to 12 .
C Change 48 to 72 .
D Change 96 to 56 .

14 The diagram shows the net of a juice box. The box is a rectangular prism.


What is the surface area of the juice box?
A $\quad 134.8 \mathrm{~cm}^{2}$
B $\quad 185.6 \mathrm{~cm}^{2}$
C $\quad 218.4 \mathrm{~cm}^{2}$
D $\quad 269.6 \mathrm{~cm}^{2}$

15 Each baseball team in a baseball league has 14 players. A total of 56 players signed up to play. If $t$ represents the number of teams in the league, which statement is true?

A Since $56-14=t$, there are 42 teams in the league.
B Since $14+56=t$, there are 70 teams in the league.
C Since $14 t=56$, there are 4 teams in the league.
D Since $14=56 \div t$, there are 8 team teams in the league.

16 Ari waters his garden every 3 days and weeds it every Saturday.

Ari watered and weeded his garden this Saturday. How many days will it be until Ari again both waters and weeds his garden on the same day?

A 14 days
B 18 days
C 21 days
D 28 days

17 What is the value of the expression $(8-3)^{2}-(5-2)^{2}$ ? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

18 The perimeter of square $W X Y Z$ is 20 units. The coordinates of three of the vertices are $W(3,2)$, $X(3,7)$, and $Y(8,7)$.

What are the coordinates of vertex $Z$ ?
A $(8,-2)$
B $(-8,2)$
C $(8,2)$
D $(-8,-2)$

19 A plant is 20 inches tall. If the plant grows the same number of inches, $h$, each week for the next 4 weeks, what will be the height of the plant, in inches, after 4 weeks?

A $20+4 h$
B $20-4 h$
C $20-h$
D $20+h$

20 A contractor digs a rectangular hole that is 40 feet long and $10 \frac{1}{2}$ feet deep. What is the width of the hole if 6,510 cubic feet of dirt is removed?

A 80 feet

B $\quad 81 \frac{1}{4}$ feet

C 16 feet

D $\quad 15 \frac{1}{2}$ feet

21 Erika has three 25-yard-long pieces of ribbon. She needs to cut pieces that are 22 inches long. What is the greatest number of 22 -inch pieces that she can cut from the three ribbons?

A 123
B 120
C 41
D 40

22 The Martins plan to add a rectangular pool to their backyard. Mr. Martin wants the pool to have a 4 -foot deck around it. Mrs. Martin thinks the deck should be 8 feet wide. Refer to the diagram below.


How will the area of the deck change if it is increased from 4 feet wide to 8 feet wide all the way around the pool?

A The area will increase by a factor of $\frac{1}{2}$.
B The area will increase by a factor of 2.
C The area will increase by a factor of $2 \frac{1}{3}$.

D The area will increase by a factor of 4.

23 Only boxes less than $3 \frac{1}{2}$ feet wide will fit through a doorway.
Which set of measurements shows the widths of three boxes than will fit through the doorway?

A 40 inches, 37 inches, 41 inches
B 42 inches, 43 inches, 38 inches
C 36 inches, 42 inches, 40 inches
D 38 inches, 40 inches, 42 inches

24 On a particular Saturday, $60 \%$ of the visitors to an art museum were students. If 144 students visited the museum, how many total visitors did the art museum have that day?

A 200
B 204
C 220
D 240

25 Which figure represents the trapezoid $A B C D$ whose vertices are $A(-6,4), B(-6,8), C(-10,10)$ and $D(-10,2)$ ?


A


B


C


D

26 The height, in feet, of an object $t$ seconds after it is dropped from an initial height of $h_{0}$ feet above ground is found by the formula below.

$$
h=h_{0}-16 t^{2}
$$

What is the height, in feet, of an object 2 seconds after it is dropped from an initial height of 1,200 feet above ground? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

27 What is the distance between the points $A\left(3,4 \frac{1}{4}\right)$ and $B\left(3,6 \frac{1}{2}\right)$ ?
A $2 \frac{1}{4}$ units
B $\quad 2 \frac{1}{2}$ units
C $2 \frac{3}{4}$ units
D $3 \frac{1}{4}$ units

28 Which of these statements is true?
A The greatest common factor of 10 and 14 is 5 .
B The greatest common factor of 10 and 15 is 5.
C The greatest common factor of 13 and 21 is 3.
D The greatest common factor of 14 and 21 is 3.

29 Consider the expression below.

$$
3 x-\left(2 y^{2}+z^{3}\right)
$$

For all positive values of $x, y$, and $z$ less than 1 , which order of the value of the variables would give the expression the greatest value?

A $x<y<z$
B $\quad x<z<y$
C $y<z<x$
D $\quad z<y<x$

30 Faraji wants to put a fence around his rectangular rose garden, as shown in the figure below. Each unit on the grid represents one foot. The cost of the fence is $\$ 1.50$ per foot.


How much will it cost Faraji for the fence?
A $\$ 18$
B $\$ 36$
C $\$ 48$
D $\$ 60$

31 Which expression is equivalent to $3 x+14+3 x+10$ ?
A $4(x+6)$
B $3(x+8)$
C $6(x+24)$
D $6(x+4)$

32 Consider this figure.


Which does not show a correct way to break the figure into smaller figures to find its total area?

A $3 b \times b+\frac{1}{2}(3 b+b) b$
B $\quad 3 b \times b+b \times b+\frac{1}{2} b^{2}$
C $\quad 2 b \times b+2 b \times b+\frac{1}{2} b^{2}$
D $\frac{1}{2}(3 b+2 b) b+\frac{1}{2}(3 b+b) b$

33 Sabina had \$40. She paid d dollars for lunch. Which expression represents the amount of money Sabina has left, after paying for her lunch?

A $\quad 40+d$

B 40d

C $\quad 40-d$

D $\frac{40}{d}$

34 A piece of wood that is $\frac{3}{4}$ meter long is being cut into smaller pieces that are each $\frac{1}{10}$ meter long. Which expression could be one of the steps in determining how many of those pieces can be made?

A $\frac{3}{4} \times \frac{1}{10}$
B $\frac{3}{4} \times \frac{10}{1}$
C $\frac{10}{1} \times \frac{4}{3}$
D $\frac{1}{10} \times \frac{3}{4}$

35 Which equation is true for any value of $y$ ?
A $4 y^{2}+2=(4 y \times 4 y)+2$
B $\quad 4 y^{2}+2=(4 y+y)+2$
C $\quad 4 y^{2}+2=4(y+y)+2$
D $\quad 4 y^{2}+2=4(y \times y)+2$

36 Mr. Connelly is planning a field trip for the 24 students in his class. He can spend $\$ 210$ on admission tickets to whichever museum he decides to visit.

The tables show the total cost for different numbers of admissions to four different museums the class could visit. Which museum should Mr. Connelly choose?

| Number of Admissions | Total Cost (\$) |
| :---: | :---: |
| 2 | 2 |
| 24 |  |
|  | 4 |
| 5 | 60 |

B | Number of Admissions | Total Cost (\$) |
| :---: | :---: |
| 3 | 27 |
| 6 | 54 |
| 8 | 72 |

C | Number of Admissions | Total Cost (\$) |
| :---: | :---: |
| 4 | 32 |
| 5 | 40 |
| 6 | 48 |

D | Number of Admissions | Total Cost (\$) |
| :---: | :---: |
| 3 | 30 |
| 8 | 80 |
| 10 | 100 |

37 Martin has 48 blue balloons and 36 orange balloons. He separates the balloons into mixed groups of blue and orange. There are the same number of blue balloons in each group, and the same number of orange balloons in each group. What is the least total number of balloons that could be in each group?

A 4
B 7
C 9
D 21

38 Lucia is wrapping packages in the shape of a triangular prism. The net of the prism is shown below.

[not drawn to scale]

Lucia has 6 identical packages to wrap. What is the combined surface area, in square inches, of all 6 packages? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

39 Guests must be at least $42 \frac{1}{2}$ inches tall to go on an amusement park ride. Which inequality represents the heights in inches of guests allowed on the ride?

A $\quad h \geq 42 \frac{1}{2}$
B $\quad h>42 \frac{1}{2}$

C $h \geq 43$

D $\quad h>43$

40 The table below shows the number of customers served each hour at a local deli.

## CUSTOMERS SERVED AT A DELI

| Time | Number of Customers Served |
| :---: | :---: |
| $9 \mathrm{AM}-10 \mathrm{AM}$ | 30 |
| $10 \mathrm{AM}-11 \mathrm{AM}$ | 46 |
| $11 \mathrm{AM}-12 \mathrm{PM}$ | 78 |
| $12 \mathrm{PM}-1 \mathrm{PM}$ | 71 |
| $1 \mathrm{PM}-2 \mathrm{PM}$ | 48 |
| $2 \mathrm{PM}-3 \mathrm{PM}$ | 36 |
| 3 PM - 4 PM | 28 |
| $4 \mathrm{PM}-5 \mathrm{PM}$ | 35 |
| $5 \mathrm{PM}-6 \mathrm{PM}$ | 50 |
| 6 PM - 7 PM | 28 |

What is the mean number of customers served per hour?
A 36
B 41
C 45
D 50

41 Mrs. Donetelli wrote the following sentence on the board:
"The library has at least 5,000 books, b."

Which inequality represents the situation and has an infinite number of solutions?
A $b>5,000$
B $\quad b \geq 5,000$
C $b<5,000$
D $0<b \leq 5,000$

42 Leslie is 3 inches shorter than Zoe. Zoe is 54 inches tall. If $h$ represents Leslie's height, which algebraic equation and solution represent this situation?

A $3-h=54 ; h=57 ; 57 \mathrm{in}$.
B $\quad 3-54=h ; h=51 ; 51 \mathrm{in}$.
C $3+54=h ; h=57 ; 57 \mathrm{in}$.
D $\quad 54-h=3 ; h=51 ; 51 \mathrm{in}$.

## Calculator-Inactive Section

## Answer questions 43-65 on your answer sheet. You may NOT use a calculator.

43 Which ordered pairs represent a pair of points that are related by a reflection across both axes?
A $(3,-4)$ and $(-3,4)$
B $(3,-4)$ and $(-3,-4)$
C $(3,-4)$ and $(3,4)$
D $(3,-4)$ and $(3,-4)$

44 A youth ice hockey game has three 20-minute periods. Colin plays 12 minutes each period. Which ratio represents Colin's playing time compared to the total number of minutes of playing time possible?

A 1 to 4
B 3 to 20
C 1 to 5
D 3 to 5

45 A store's owner took surveys on two separate days to find the ages of shoppers at the store. The results are shown here:

$$
\begin{aligned}
& \text { Tuesday: mean age }=28 ; \text { median age }=28 \\
& \text { Saturday: mean age }=28 ; \text { median age }=35
\end{aligned}
$$

Which statement about the data is not correct?
A It is possible that one shopper on Saturday was less than 28 years old.
B It is possible that all the surveyed shoppers on Tuesday were 28 years old.
C It is possible that none of the surveyed shoppers on Tuesday were 28 years old.
D It is possible that all of the surveyed shoppers on Saturday were 35 years old.

46 Which number is located on the opposite side of 0 on the number line from the opposite of -7 ?

A 0
B -3
C 3
D 7

47 A survey conducted at a local pet store included a section about dogs. Which of these questions is a statistical question and makes sense to be included on the survey?

A "How many legs does a dog have?"
B "How many dogs do you own?"
C "Is a veterinarian a doctor for dogs?"
D "Is a kennel a shelter for dogs?"

48 A kitchen makes 2,944 ounces of soup each week. There are 128 ounces in 1 gallon. How many gallons of soup does the kitchen make in 2 weeks?

A 18
B 23
C 36
D 46

49 The distances and times of practice runs for four students on the cross-country team are shown in the table below.

| Runner | Distance (miles) | Time (minutes) |
| :--- | :---: | :---: |
| Sean | 3 | 21 |
| Gwen | 4 | 32 |
| Marc | 5 | 30 |
| Imani | 2 | 14 |

Which runner has the fastest pace in minutes per mile during these practice runs?
A Sean
B Gwen
C Marc
D Imani

50 Which point is a reflection of point $R(-2,9)$ first across the $y$-axis and then across the $x$-axis?
A $(-9,-2)$
B $(-2,-9)$
C $(2,-9)$
D $(9,-2)$

51 The local grocery store is having a sale on watermelons. Mr. Jackson purchases 10 watermelons for a school picnic. He pays $\$ 39.90$ for the watermelons. What is the price of each watermelon? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

52 Rebecca made this graph to show the colors of shirts students wore to school one day.


Which could have been the group of students Rebecca examined?
A Students in her homeroom.
B Students in the cafeteria at lunch.
C Students sitting in the office.
D Students playing in one basketball game.

53 Which expression represents the following situation?

Multiply the sum of a number and 3 by the difference of 8 and the number.
A $\quad p+3 \times 8-p$
B $\quad p+3(8-p)$
C $p+3 \times(8-p)$
D $(p+3) \times(8-p)$

54 A topographic map of the park in Wolf Basin lists the elevation of the park ranger station as -21 feet and the elevation of the park visitor center as -29 feet. Which statement is true?

A Since $-29<-21$, the park ranger station is at a higher elevation than the park visitor center.

B Since $-29>-21$, the park ranger station is at a higher elevation than the park visitor center.

C Since $-29<-21$, the park visitor center is at a higher elevation than the park ranger station.

D Since $-29>-21$, the park visitor center is at a higher elevation than the park ranger station.

55 Which statement about a data set provides the most information about the variability of the data?

A The mean of the data set is 28 .
B The median of the data set is 30 .
C The range of the data set is 18 .
D The maximum of the data set is 40 .

56 How many factors in the expression $8(x+4)(y+4)\left(z^{2}+4 z+7\right)$ have exactly two terms?
A 1
B 2
C 3
D 4

57 The data list the number of customers Joe's Diner served during lunchtime hours for the past 12 days.
$22,25,50,58,28,24,25,51,43,32,49,38$

Which box plot best displays these data?


B


C


D


58 This table shows the daily changes in the price of a stock. The value 0 represents no change in price from the previous day.

| Day | Price Change (in dollars) |
| :--- | :---: |
| Monday | +0.78 |
| Tuesday | +0.44 |
| Wednesday | -1.27 |
| Thursday | +0.35 |

On how many days did the price of the stock increase? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

59 The table shows the change in low temperature in Albany compared to the day before.

| Day | Low Temperature Change ( ${ }^{\circ} \mathrm{F}$ ) |
| :--- | :---: |
| Wednesday | +3.5 |
| Thursday | -4.1 |
| Friday | 0 |
| Saturday | +2.2 |

On which day did the low temperature change the most from the day before?
A Wednesday
B Thursday
C Friday
D Saturday

60 Kate has lunch with two friends. The bill for their lunch is $\$ 29.46$. They leave a tip of $\$ 5.25$ and divide the total equally.

How much does each person pay?
A $\$ 4.57$
B $\quad \$ 9.82$
C $\quad \$ 11.57$
D $\quad \$ 15.07$

61 A car salesman's total earnings, $E$, is a base salary plus a commission. The salesman has a base salary of $\$ 40,000$ and receives a commission of $\$ 200$ for every car, $c$, he sells. Which equation represents the total earnings for the salesman?

A $E=40,000-200 \times c$
B $E=40,000 \times c+200$
C $E=40,000+200 \times c$
D $E=40,000-c \div 200$

62 Consider the number line below.


Which statement best compares $-1 \frac{1}{2}$ and $-2 \frac{1}{2}$ ?
A Since $-2 \frac{1}{2}$ and $-1 \frac{1}{2}$ are both the same distance from $0,-2 \frac{1}{2}=-1 \frac{1}{2}$.
B Since $-2 \frac{1}{2}$ and $-1 \frac{1}{2}$ are both one space from $-2,-2 \frac{1}{2}=-1 \frac{1}{2}$.
C Since $-2 \frac{1}{2}$ is farther from 0 than $-1 \frac{1}{2},-2 \frac{1}{2}>-1 \frac{1}{2}$.
D Since $-2 \frac{1}{2}$ is to the left of $-1 \frac{1}{2},-2 \frac{1}{2}<-1 \frac{1}{2}$.

63 What are the coefficients in the expression $8 y^{2}+12 x+5 y+7$ ?
A $7,8,12$
B $8,5,12$
C $8,5,7$
D $5,7,12$

64 Which point on the coordinate grid below represents $(5,-3)$ ?


A point $R$
B point $Q$
C point $P$
D point $S$

65 Which expression is equivalent to the expression $\left(\frac{1}{2}\right)^{3}$ ?
A $3 \times \frac{1}{2}$
B $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$
C $\quad \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$
D $\quad 3+\frac{1}{2}$

## STOP

Name $\qquad$
Teacher Grade

School
City

## Assessment 3

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
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13. (A) (B) (C) (D)
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34. (A) (B) (C) (D)
35. (A) (B) (C) (D)
36. (A) (B) (C) (D)
37. (A) (B) (C) (D)
38.

39. (A) (B) (C) (D)
40. (A) (B) (C) (D)
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42. (A) (B) (C) (D)
43. (A) (B) (C) (D)
44. (A) (B) (C) (D)
45. (A) (B) (C) (D)
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47. (A) (B) (C) (D)
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49. (A) (B) (C) (D)
50. (A) (B) (C) (D)
51.


Ready North Carolina—Mathematics Assessments, Grade 6 Answer Form

Name $\qquad$
Teacher $\qquad$ Grade $\qquad$
School $\qquad$ City

## Assessment 3 (continued)

52. (A) (B) (C) (D)
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54. (A) (B) (C) (D)
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