

Directions: Answer the following question(s).

- 1 Lucy bought 6 boxes of red licorice and 2 boxes of black licorice. Each box of licorice has 8 pieces in it. Which expression could Lucy use to find the total number of licorice pieces she bought?

A.  $6 + 2 + 8 =$   
 B.  $6 \times 2 \times 8 =$   
 C.  $(6 + 2) \times 8 =$   
 D.  $(6 \times 2) + 8 =$

Master ID: 3251831 Revision: 1  
 Correct: C  
 Rationale:  
 A. Student(s) may have thought adding all the numbers together would give Lucy the total number of licorice pieces she bought.  
 B. Student(s) may have thought multiplying all the numbers together would give Lucy the total number of licorice pieces she bought.  
 C. Correct answer  
 D. Student(s) may have thought multiplying the number of boxes together and then adding the number of pieces in a box would give Lucy the total number of licorice pieces she bought.  
 Rubric: 1 Point(s)  
 Standards:  
 MGSE5.OA.1

- 2 What is the value of the expression below?  
 $(11 \times 6) \div (2 + 1)$

A. 69  
 B. 34  
 C. 33  
 D. 22

Master ID: 3249507 Revision: 1  
 Correct: D  
 Rationale:  
 A. Student(s) may have added the two values in the parentheses instead of dividing.  
 B. Student(s) may have solved the expression in the order shown, from left to right, rather than by following the order of operations.  
 C. Student(s) may have multiplied the values in the second set of parentheses and then divided.  
 D. Correct answer  
 Rubric: 1 Point(s)  
 Standards:  
 MGSE5.OA.1

Directions: Answer the following question(s).

3 Evaluate the expression below.

$$(20 + 4) \div (2 \times 4)$$

- A. 88
- B. 48
- C. 28
- D. 3

Master ID: 3247399 Revision: 1  
 Correct: D  
 Rationale:  
 A. Student(s) may have made a mistake by dividing first. Student(s) may have then added 20 before multiplying by 4.  
 B. Student(s) may not have known how to evaluate an expression using parentheses and evaluated the equation from left to right.  
 C. Student(s) may have ignored the parentheses in the expression. Student(s) may have thought to begin the order of operations with division. Student(s) may have then multiplied and then added.  
 D. Correct answer  
 Rubric: 1 Point(s)  
 Standards: MGSE5.OA.1

4 Which equation shows a correct strategy and product for the expression shown?

$$0.9 \times 0.6$$

- A.  $\frac{9}{10} \times \frac{6}{10} = \frac{54}{100}$
- B.  $\frac{9}{100} \times \frac{6}{100} = \frac{15}{200}$
- C.  $\frac{9}{100} \times \frac{6}{100} = \frac{54}{100}$
- D.  $\frac{9}{10} \times \frac{6}{10} = \frac{15}{20}$

Master ID: 3572176 Revision: 1  
 Correct: A  
 Rationale:  
 A. This is correct and is the result of understanding the correct strategy to multiply decimals.  
 B. This is the result of incorrectly thinking the decimals are in the hundredth place and adding, instead of multiplying, the numerators and denominators.  
 C. This is the result of thinking the decimals were in the hundredths place when they are actually in the tenths place.  
 D. This is the result of adding, instead of multiplying, the numerators and denominators.  
 Rubric: 1 Point(s)  
 Standards: MGSE5.NBT.7

Directions: Answer the following question(s).

5

427.526

Which expression describes the number in expanded form?

- A.  $400 + 20 + 7 + \left(5 \times \frac{1}{100}\right) + \left(2 \times \frac{1}{10}\right) + \left(6 \times \frac{1}{1}\right)$
- B.  $(4 \times 100) + (2 \times 10) + (7 \times 1) + (5 \times 100) + (2 \times 10) + (6 \times 1)$
- C.  $(4 \times 100) + (2 \times 10) + (7 \times 1) + \left(5 \times \frac{1}{10}\right) + \left(2 \times \frac{1}{100}\right) + \left(6 \times \frac{1}{1000}\right)$
- D.  $(4 \times 100,000) + (2 \times 10,000) + (7 \times 1000) + (5 \times 100) + (2 \times 10) + (6 \times 1)$

Master ID: 3746546 Revision: 1

Correct: C

Rationale:

- A. The student may be having difficulty understanding decimal place value and how that translates to expanded form. The student may have difficulty reading decimals and has used whole number place values for the denominators of each decimal fraction. The student may be reading the decimal as, "four hundred twenty-seven and five hundred twenty-one."
- B. The student may not be familiar with decimals and decimal place value vocabulary. The student identified the decimal as two whole number values.
- C. *Correct Answer*; The student correctly identified the expanded form of 427.526.
- D. The student may be having difficulty with basic decimal concepts or may not be attending to precision. The student may have interpreted the decimal as a comma and reported the number as a whole number to the hundred thousands place.

Standards:

MGSE5.NBT.3  
MGSE5.NBT.3a

6

Toshi saw the number below written in his math book.

56.089

What is the correct way to read this number?

- A. fifty-six and eighty-nine tenths
- B. fifty-six and eighty-nine hundredths
- C. fifty-six and eighty-nine thousandths
- D. fifty-six and ninety-eight thousandths

Master ID: 305052 Revision: 4

Correct: C

Rationale:

- A. This answer results from confusing the tenths and the thousandths places.
- B. This is the correct way to read 56.89, not 56.089.
- C. This is the correct way to read 56.089.
- D. This is the correct way to read 56.098, not 56.089.

Rubric: 1 Point(s)

Standards:

MGSE5.NBT.3a

Directions: Answer the following question(s).

- 7 Dylan wrote the decimal shown.

63.018

What is the correct way to read the decimal?

- A. sixty-three and eighteen tenths
- B. sixty-three and eighteen hundredths
- C. sixty-three and eighteen thousandths
- D. sixty-three and eighteen ten thousandths

Master ID: 305063 Revision: 5  
 Correct: C  
 Rationale:  
 A. This is the result of reversing the tenths and thousandths place values.  
 B. This is the result of ignoring the 0 in the tenths place and thinking that the two decimal places shown are the tenths and hundredths places.  
 C. This is the result of correctly placing the 8 in the thousandths place and reading the given number.  
 D. This is the result of stating the number based on seeing a total of 5 digits in the number.  
 Rubric: 1 Point(s)  
 Standards:  
 MGSE5.NBT.3a

- 8 Which decimal correctly completes the number sentence below?

$804.02 > ?$

- A. 804.020
- B. 804.019
- C. 804.120
- D. 804.025

Master ID: 305081 Revision: 4  
 Correct: B  
 Rationale:  
 A. This is the result of comparing two equal decimals.  
 B. This is the result of comparing all of the digits in the numbers and recognizing that 20 thousandths is greater than 19 thousandths:  $804.020 > 804.019$ .  
 C. This is the result of comparing the digits in the tenths place only. One tenth is greater than 0 tenths, therefore 804.02 is not greater than 804.120.  
 D. This is the result of not recognizing that 25 thousandths is greater than 20 thousandths, and that 804.02 is not greater than 804.025.  
 Rubric: 1 Point(s)  
 Standards:  
 MGSE5.NBT.3b

Directions: Answer the following question(s).

9 Fill in the blank below.

7.391 >

- A. 71.39
- B. 7.515
- C. 7.401
- D. 7.389

Master ID: 3246819 Revision: 1  
 Correct: D  
 Rationale:  
 A. Student(s) may have ignored the placement of the decimal and focused on the first two numbers in the decimal number in the stem. Student(s) may have chosen this option because 73 was greater than 71.  
 B. Student(s) may have thought the symbol in the stem was the less than symbol instead of the greater than symbol and chose this option because 7.391 was less than 7.515.  
 C. Student(s) may have focused on the digits in the hundredths place and the thousandths place. Student(s) may have chosen this option because 91 was greater than 1.  
 D. Correct answer  
 Rubric: 1 Point(s)  
 Standards: MGSE5.NBT.3b

10 Which decimal should be placed in the box to make the following statement true?

1.043 < □

- A. 0.7
- B. 1.005
- C. 1.038
- D. 1.060

Master ID: 3248213 Revision: 1  
 Correct: D  
 Rationale:  
 A. Student(s) may have overlooked the digit 1 in the number 1.043.  
 B. Student(s) may have confused the place value of the digits and incorrectly compared the digit 4 in 1.043 to the digit 5 in 1.005.  
 C. Student(s) may have confused the greater than and less than signs when comparing decimals.  
 D. Correct answer  
 Rubric: 1 Point(s)  
 Standards: MGSE5.NBT.3b

11 Lucas used a calculator to divide 15 by 8 and got 1.875. What is the number rounded to nearest tenth?

- A. 1.8
- B. 1.88
- C. 1.9
- D. 2.0

Master ID: 3272679 Revision: 1  
 Correct: C  
 Rationale:  
 A. Student(s) may not have thought it was necessary to round up.  
 B. Student(s) may have confused the hundredth's place with the tenth's place.  
 C. Correct answer  
 D. Student(s) may have thought it was necessary to round the one's place up.  
 Rubric: 1 Point(s)  
 Standards: MGSE5.NBT.4

Directions: Answer the following question(s).

12 What is 22416.163 rounded to the nearest HUNDRED?

- A. 22400
- B. 22416.16
- C. 22416.2
- D. 22420

Master ID: 3273047 Revision: 1  
Correct: A  
Rationale:  
A. Correct answer  
B. Student(s) may have rounded to the nearest HUNDREDTH rather than the nearest HUNDRED.  
C. Student(s) may have rounded to the nearest TENTH rather than the nearest HUNDRED.  
D. Student(s) may have rounded to the nearest TEN rather than the nearest HUNDRED.  
Rubric: 1 Point(s)  
Standards:  
MGSE5.NBT.4

13 Cal used a calculator to solve an arithmetic problem for his father. The solution displayed on the calculator was 29.874. What is the solution rounded to the nearest tenth?

- A. 29.7
- B. 29.8
- C. 29.9
- D. 30.0

Master ID: 2205986 Revision: 3  
Correct: C  
Rationale:  
A. This is the result of using the digit from the hundredths place as the new digit for the tenths place.  
B. This is the result of either rounding down instead of up, or simply truncating.  
C. This is the result of correctly rounding to the nearest tenth. The hundredths digit is 7, which is greater than 5, so the tenths digit is increased by one, from 8 to 9.  
D. This is the result of rounding to the nearest whole number, not to the nearest tenth.  
Rubric: 1 Point(s)  
Standards:  
MGSE5.NBT.4

Directions: Answer the following question(s).

- 14 The parking garage at the mall has 16 parking levels.

If each level has 123 spaces, how many spaces are in the parking garage?

- A. 861
- B. 1,218
- C. 1,851
- D. 1,968

Master ID: 3746336 Revision: 1

Correct: D

Rationale:

- A. The student did not drop the zero placeholder when multiplying by the tens place.

$$\begin{array}{r} 123 \\ \times 16 \\ \hline 738 \\ 123 \\ \hline 861 \end{array}$$

- B. The student multiplied by place value and did not carry the tens place values to the next number. ( $6 \times 3 = 18$ ;  $2 \times 1 = 2$ ; 1 has no multiplier so it is brought down into the answer.)

$$\begin{array}{r} 123 \\ \times 16 \\ \hline 1218 \end{array}$$

- C. The student carried the digit in the ones place instead of the digit in the tens place.

$$\begin{array}{r} 123 \\ \times 16 \\ \hline 621 \\ 1230 \\ \hline 1851 \end{array}$$

- D. *Correct Answer*; the student demonstrated an understanding of the process of multiplication using the algorithm.

Standards:

MGSE5.NBT.5

- 15 Multiply:

$$27 \times 19 =$$

- A. 270
- B. 413
- C. 513
- D. 540

Master ID: 3286367 Revision: 1

Correct: C

Rationale:

- A. Student(s) may have dropped the 9 and multiplied only by 10 rather than by 19.
- B. Student(s) may have forgotten to carry over to the hundreds place.
- C. Correct answer
- D. Student(s) may have tried to estimate the answer by multiplying  $27 \times 20$ .

Rubric: 1 Point(s)

Standards:

MGSE5.NBT.5

Directions: Answer the following question(s).

- 16 The cross country club is signing up for a marathon. There are 116 members in the club.

If the entrance fee is \$35 per person, how much will the cross country club have to pay in total for all members?

- A. \$160
- B. \$928
- C. \$4,060
- D. \$8,848

Master ID: 3746165 Revision: 1

Correct: C

Rationale:

- A. The student multiplied by place value. ( $6 \times 5 = 30$ , carry the 3;  $3 \times 1 + 3 = 6$ ; 1 has no multiplier, so it is brought down into the answer.

$$\begin{array}{r} 116 \\ \times 35 \\ \hline 160 \end{array}$$

- B. The student multiplied but did not drop the zero placeholder when multiplying by the tens place.

$$\begin{array}{r} 116 \\ \times 35 \\ \hline 580 \\ 348 \\ \hline 928 \end{array}$$

- C. *Correct Answer*; the student demonstrated an understanding of the process of multiplication using the algorithm.
- D. The student did not carry any tens place digit, but brought them down instead.

$$\begin{array}{r} 116 \\ \times 35 \\ \hline 5530 \\ 3318 \\ \hline 8848 \end{array}$$

Standards:

MGSE5.NBT.5

- 17 Solve:

$$396 \times 28 =$$

- A. 11,088
- B. 10,088
- C. 3960
- D. 3168

Master ID: 3272284 Revision: 1

Correct: A

Rationale:

- A. Correct answer
- B. Student(s) may have made a mistake when adding to find the answer and forgot to carry the 1 from the hundreds to the thousands.
- C. Student(s) may have incorrectly aligned the numbers when adding by not including the 0 in the ones place. (Added 3,168 to 792 instead of to 7,920.)
- D. Student(s) may not have completed the problem and only multiplied 396 times 8 instead of 28.

Rubric: 1 Point(s)

Standards:

MGSE5.NBT.5



Directions: Answer the following question(s).

18 What is 1,568 divided by 28?

- A. 52
- B. 56
- C. 67
- D. 78

Master ID: 3746531 Revision: 1  
 Correct: B  
 Rationale:  
 A. The student may have estimated the answer by dividing 1500 by 30, and then selected the closest answer to 50.  
 B. *Correct Answer*; Because 28 is close to 30, and 30 would go into 1500 fifty times, one approach would be to multiply 28 by 50, which is 1400. Subtracting 1400 from 1568 leaves 168. Because we now know that 5 times 28 would be 140 (place value), 6 times 28 would be 168. Fifty plus 6 is 56.  
 C. The student may have divided 1568 by 20, because 28 is between 20 and 30, then selected the next smaller answer, realizing that 20 is smaller than 28.  
 D. The student may have divided 1568 by 20, or used 20 as an estimate.  
 Standards:  
 MGSE5.NBT.6

19 Jordan earns \$45 weekly working at his father's store. After saving his money for 8 weeks, he bought a skateboard for \$59 and a helmet for \$29. Which expression can be used to find how much money Jordan has left after buying his skateboard and helmet?

- A.  $8 \times \$45 - (\$59 + \$29)$
- B.  $8 \times (\$59 + \$29) - \$45$
- C.  $8 + \$45 - (\$59 + \$29)$
- D.  $8 + (\$59 + \$29) \times \$45$

Master ID: 304959 Revision: 3  
 Correct: A  
 Rationale:  
 A.  $8 \times 45$  shows how much money he saved. Add  $59 + 29$ , then subtract that from the money he saved.  
 B. This is the result of multiplying the money spent by 8 and then subtracting the earnings per week.  
 C. This is the result of adding  $8 + 45$  instead of multiplying.  
 D. This is the result of placing the 45 on the wrong side of the expression and not subtracting the amount spent.  
 Rubric: 1 Point(s)

Directions: Answer the following question(s).

20 Evaluate.

$$4 + (8 \times 8) - 1$$

- A. 19
- B. 63
- C. 67
- D. 95

Master ID: 3249482 Revision: 1  
 Correct: C  
 Rationale:  
 A. Student(s) may have focused on the addition symbol before the parentheses and added the numbers within the parentheses instead of multiplying.  
 B. Student(s) may have known to do the operation within the parentheses first. Student(s) may have switched the + and  $\times$  operation symbols and added  $8 + 8$  and then multiplied the sum by 4.  
 C. Correct answer  
 D. Student(s) may not have multiplied the numbers within the parentheses first before adding the four and subtracting the one.  
 Rubric: 1 Point(s)  
 Standards: MGSE5.OA.1

21 Tarik wrote the expression  $(5 \times 25) - 12$ . Which question means the same as the expression Tarik wrote?

- A. What is the value of the product of 5 and 12 less than 25?
- B. What is the value of the product of 5 and 12 more than 25?
- C. What is the value of 12 less than the product of 5 and 25?
- D. What is the value of 12 more than the product of 5 and 25?

Master ID: 2205958 Revision: 3  
 Correct: C  
 Rationale:  
 A. This is the result of interpreting the mathematical expression as meaning to subtract 12 from 25 before multiplying by 5.  
 B. This is the result of interpreting the mathematical expression as meaning to add 12 to 25 before multiplying by 5.  
 C. This is the result of correctly interpreting and equating the verbal and mathematical expressions.  
 D. This is the result of interpreting "12 more than" as meaning to subtract instead of add.  
 Rubric: 1 Point(s)

Directions: Answer the following question(s).

22 Evaluate the expression.

$$(13 + 35) + (44 - 27)$$

- A. 31
- B. 55
- C. 65
- D. 119

Master ID: 3289323 Revision: 1  
 Correct: C  
 Rationale:  
 A. Student(s) added  $13 + 35$ , subtracted 44 and added 27.  
 B. Student(s) made an arithmetical error in the calculation.  
 C. Correct answer  
 D. Student(s) added all of the numbers.  
 Rubric: 1 Point(s)  
 Standards:  
 MGSE5.OA.1

23 Round 26.084 to the nearest tenth.

- A. 26
- B. 26.01
- C. 26.1
- D. 30

Master ID: 3273029 Revision: 1  
 Correct: C  
 Rationale:  
 A. Student(s) may have thought that since the tenth place was a 0 you would just drop all of the numbers after the decimal place.  
 B. Student(s) may have confused the tenth place with the hundredth place.  
 C. Correct answer  
 D. Student(s) may have thought that rounding to the tenth place was the same as rounding to the nearest ten. Therefore since 26 is greater than 25 they rounded up to 30.  
 Rubric: 1 Point(s)  
 Standards:  
 MGSE5.NBT.4

24 What decimal number describes  $\frac{1}{10}$  of 0.04?

- A. 0.004
- B. 0.040
- C. 0.40
- D. 4.0

Master ID: 3746547 Revision: 1  
 Correct: A  
 Rationale:  
 A. *Correct Answer*; The student correctly identified the value  $\frac{1}{10}$  smaller than 0.04.  
 B. The student might not understand that the trailing zero did not change the place value of the 4. This answer has the same value, not  $\frac{1}{10}$ .  
 C. The student might not understand place values for decimal fractions. This answer is ten times 0.04 rather than  $\frac{1}{10}$  – the decimal point has moved in the wrong direction.  
 D. The student might not understand place values and selected a whole number.  
 Standards:  
 MGSE5.NBT.1

Directions: Answer the following question(s).

- 25 Look at the number and answer the question below.

746

If the 4 represents 40, then what is the value of the 6 and the 7?

- A. 6; 7
- B. 6; 70
- C. 6; 700
- D. 600; 7

Master ID:	3246847	Revision:	1
Correct:	C		
Rationale:			
A.	Student(s) may have thought to identify the numbers in the number 746 instead of the value of the numbers.		
B.	Student(s) may not have remembered that the digit in one place is 1/10 of what it represents to its left.		
C.	Correct answer		
D.	Student(s) may have confused the numbers 6 and 7 and thought the 6 was in the hundreds' place and the 7 was in the ones' place.		
Rubric:	1 Point(s)		
Standards:			
MGSE5.NBT.1			

- 26 What is 4.039 in word form?

- A. Four thousand, thirty nine
- B. Four and thirty-nine tenths
- C. Four and thirty-nine hundredths
- D. Four and thirty-nine thousandths

Master ID:	3259317	Revision:	1
Correct:	D		
Rationale:			
A. Student(s) may have not understood that the answer requires the word "and" be stated after the digit 4. Student(s) may have misinterpreted the decimal point for a comma.			
B. Student(s) may have thought that the 39 thousandths in the problem are similar to 39 when it is written to the left of the decimal point. When 39 is to the left of the decimal point, it is three tens. Therefore students could have interpreted it as tenths when it is to the right of the decimal point as in this problem.			
C. Student(s) may have seen the digit three in the hundredths place and therefore assumed that the two digits to the right of the decimal point, three and nine, would be read as hundredths.			
D. Correct answer			
Rubric:	1 Point(s)		
Standards:			
MGSE5.NBT.3a			

- 27 Divide. Show your work

$$6,484 \div 80$$

- A. 68
- B. 75
- C. 78
- D. 88

Master ID:	3473482	Revision:	1
Correct:	C		
Standards:	MGSE5.NBT.6		

Directions: Answer the following question(s).

- 28 Shannon bought fabric for \$23.94. Kristy bought the same fabric at another store for \$27.00. How much more did Kristy pay for the fabric than Shannon?

A. \$4.94  
B. \$3.16  
C. \$3.06  
D. \$3.05

Master ID: 3259004 Revision: 1  
Correct: C  
Rationale:  
A. Student(s) may have set up the subtraction problem incorrectly and tried to subtract \$27.00 from \$23.94. Student(s) may have then incorrectly subtracted 7 from 3 in the ones place to calculate 4.  
B. Student(s) may have regrouped incorrectly in the tenths place. Student(s) may have incorrectly subtracted 9 from 10 and calculated 1 instead of subtracting 9 from 9 in the tenths place to calculate 0.  
C. Correct answer  
D. Student(s) may have regrouped incorrectly in the hundredths place. Student(s) may have subtracted 4 from 9 to calculate 5 instead of subtracting 4 from 10 to calculate 6 in the hundredths place.  
Rubric: 1 Point(s)  
Standards:  
MGSE5.NBT.7

- 29 Lisa used a coupon when she bought her new toaster. The original price of the toaster was \$16.00. Lisa's coupon saved her \$3.52. How much did Lisa pay for the toaster?

A. \$13.48  
B. \$12.58  
C. \$12.48  
D. \$11.58

Master ID: 3258985 Revision: 1  
Correct: C  
Rationale:  
A. Student(s) may have made an organizational error and forgotten to decrease the one value when borrowing.  
B. Student(s) may have believed when they borrowed from the ones place it affected both the 0s in the 16.00.  
C. Correct answer  
D. Student(s) may have borrowed from the ones place twice instead of borrowing from the tenths place when subtracting the hundredths digits.  
Rubric: 1 Point(s)  
Standards:  
MGSE5.NBT.7