Directions: Answer the following question(s).

1 Ally is 4 ft. 8 inches tall. She wrote the expression below to find her height in inches.

$$(4 \times 12) + 8$$

Which of the following correctly shows Ally's height in inches?

A. 56 inches
B. 48 inches
C. 80 inches
D. 44 inches

Master ID: 304946 Revision: 3
Correct: A
Rationale:
A. Multiply 4 x 12 = 48, then add 48 + 8 = 56.
B. This is the result of multiplying 4 x 12 = 48 and failing to add the 8.
C. This is the result of adding 12 + 8 = 20, then multiplying 20 x 4 = 80.
D. This is the result of multiplying 4 x 8 = 32, then adding 32 + 12 = 44.
Rubric: 1 Point(s)
Standards:
MGSE5.OA.1

2 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).

3 Which word form and standard form represent the same number?

A. forty and thirty-seven hundredths, 40.37
B. forty and thirty-seven hundredths, 40.037
C. four and thirty-seven hundredths, 40.37
D. four and thirty-seven hundredths, 40.037

Master ID: 2205971 Revision: 4
Correct: A
Rationale:
A. Both show the same number.
B. This is the result of not matching the hundredths with .037.
C. This is the result of not matching four and 40.
D. This is the result of not matching four and 40, and hundredths and .037.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.3a

4 Which value correctly completes the equation?

$$32.5 \times \square = 32{,}500$$

A. 10^2
B. 10^3
C. 10^4
D. 10^5

Master ID: 305025 Revision: 5
Correct: B
Rationale:
A. This is the result of solving based on the number of zeroes in 32,500.
B. This is correct, since 32.5 x 1,000 = 32,500 and 1,000 = 10^3.
C. This is the result of thinking that 1,000 = 10^4 because there are 4 digits in 1,000.
D. This is the result of thinking that 1,000 = 10^5 because there are 5 digits in 32,500.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.2

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

Directions: Answer the following question(s).

6 What is five and sixty-two hundredths written in standard form?

A. 0.562
B. 5.062
C. 5.62
D. 562

Master ID: 3259321 Revision: 1
Correct: C
Rationale:
A. Student(s) may not have understood to place the decimal point between the digits 5 and 6. Student(s) may not have understood that the decimal point is placed where the word "and" is stated in the above statement, and thought all digits should be placed to the right of the decimal point.
B. Student(s) may have incorrectly placed the digit 6 in the hundredths place, since the word "hundredths" appears in the statement.
C. Correct answer
D. Student(s) may have not understood that the number stated requires placing a decimal point between the digit 5 and 6. Student(s) may have interpreted statement in word form as five hundred sixty–two.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.3a

7 Find the product:

983 × 45 =

A. 44,235
B. 34,235
C. 8847
D. 4915

Master ID: 3272280 Revision: 1
Correct: A
Rationale:
A. Correct answer
B. Student(s) may have made a mistake when adding the numbers after multiplying and forgot to carry the one from the thousands to the ten thousands place.
C. Student(s) may have incorrectly aligned the numbers when adding by not including the 0 in the ones place. (Added 4915 to 3932 instead of to 39,320.)
D. Student(s) may not have completed the problem and only multiplied 983 by 5 instead of 45.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.5

Directions: Answer the following question(s).

8 Multiply.

1242 × 16 =

A. 19,872
B. 18,662
C. 8694
D. 7484

Master ID: 3283846 Revision: 1
Correct: A
Rationale:
A. Correct answer
B. Student(s) may not have remembered to carry into the tens place and hundreds place.
C. Student(s) may not have remembered to use a placeholder when multiplying by the tens place in 16.
D. Student(s) may not have remembered to carry or to use a placeholder.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.5

9 Find the product.

5034 × 52 =

A. 35,238
B. 260,568
C. 261,768
D. 2,527,068

Master ID: 3278985 Revision: 1
Correct: C
Rationale:
A. Student(s) may have forgotten the place holder when multiplying and added 25170 instead of 251700.
B. Student(s) may have forgotten to carry when multiplying the numbers together.
C. Correct answer
D. Student(s) may have added an extra place holder when multiplying and added 2517000 instead of 251700.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.5

10 Find the product:

967,387 × 53 =

A. 7,739,096
B. 47,836,991
C. 51,271,511
D. 486,595,661

Master ID: 3278976 Revision: 1
Correct: C
Rationale:
A. Student(s) may have forgotten the place holder when multiplying and added 4836935 instead of 48369350.
B. Student(s) may have forgotten to carry when multiplying the numbers together.
C. Correct answer
D. Student(s) may have added an extra place holder when multiplying and added 483693500 instead of 48369350.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.5

Directions: Answer the following question(s).

11 Look at this expression.

$$100 - 16 \div (2 + 6) \times 7 + 4$$

Which expression has brackets placed so that the value of the expression is equal to the value of the original expression?

A. $100 - [16 \div (2 + 6) \times 7] + 4$
B. $[100 - 16] \div (2 + 6) \times 7 + 4$
C. $100 - 16 \div [(2 + 6) \times 7] + 4$
D. $100 - 16 \div [(2 + 6) \times 7 + 4]$

Master ID: 304943 Revision: 4
Correct: A
Rationale:
A. These brackets are placed around the part of the expression that, in the original expression, is evaluated before subtracting from 100 and adding 4. The order of operations is the same: first add 2 + 6 to get 8. Divide 16 by 8 to get 2, and multiply by 7 to get 14 within the brackets. Then subtract 14 from 100 to get 86, and add 4 to get 90.
B. This places the brackets around the first two terms in the expression, which results in a different order of operations and a value not equal to the value of the original expression.
C. This places the brackets around the third through fifth terms in the expression, which results in a different order of operations and a value not equal to the value of the original expression.
D. This places the brackets around the third through sixth terms in the expression, which results in a different order of operations and a value not equal to the value of the original expression.
Rubric: 1 Point(s)
Standards:
MGSE5.OA.1

12 There are 6 teams in a youth roller hockey league. Each team's roster consists of 9 skaters and 2 goalies. Which expression could be used to find the total number of players in the league?

A. 6 × (9 + 2) =
B. (6 × 9) + 2 =
C. (6 + 9) × 2 =
D. 6 + (9 × 2) =

Master ID: 3253054 Revision: 1
Correct: A
Rationale:
A. Correct answer
B. Student(s) may have put grouping symbols around the wrong terms.
C. Student(s) may have recognized there would be a sum inside parentheses and a factor outside but chosen the wrong grouping of values.
D. Student(s) may have chosen the correct grouping of numbers but used the wrong operations.
Rubric: 1 Point(s)
Standards:
MGSE5.OA.1

Directions: Answer the following question(s).

13 5.85 ÷ 2.25 =

A. 0.38
B. 2.25
C. 2.6
D. 3.6

Master ID: 3251006 Revision: 1
Correct: C
Rationale:
A. Student(s) may not have understood how to correctly divide these numbers and computed 2.25/5.85 instead of the inverse.
B. Student(s) may not have understood how to proceed with the question and instead chose one of the numbers present in the problem.
C. Correct answer
D. Student(s) may have miscalculated when dividing, or may have subtracted instead of dividing.
Rubric: 1 Point(s)

14 Which of the following represents 84.3047 rounded to the nearest thousandth?

A. 84.305
B. 84.304
C. 84.30
D. 84.31

Master ID: 305095 Revision: 4
Correct: A
Rationale:
A. This is the result of correctly rounding to the nearest thousandth.
B. This is the result of rounding down to 4 thousandths instead of rounding up.
C. This is the result of rounding to the hundredths instead of the thousandths
D. This is the result of incorrectly rounding to the hundredths by rounding up instead of rounding to the thousandths.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.4

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

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

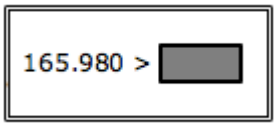
Master ID: 3746547 Revision: 1
Correct: A
Rationale:
A. *Correct Answer;* The student correctly identified the value $\frac{1}{10}$ smaller than 0.04.
B. The student might not understand that the trailing zero did not change the place value of the 4. This answer has the same value, not $\frac{1}{10}$.
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).

16 Which of the following correctly compares the two decimal numbers?

A. 410.501 > 41.051
B. 41.501 > 410.051
C. 410.510 > 410.510
D. 41.015 > 41.501

Master ID: 305076 Revision: 4
Correct: A
Rationale:
A. This is the result of correctly comparing the two decimal numbers by recognizing the value of each digit.
B. This is the result of correctly comparing the value of the digits after the decimal point, ignoring the value of the digits in the whole numbers.
C. This is the result of not recognizing that the two decimal numbers are equal.
D. This is the result of reversing the inequality sign.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.3b

17 

Which number should replace ▭ to make the statement **TRUE**?

A. 16,598
B. 1659.8
C. 165.98
D. 16.598

Master ID: 3746507 Revision: 1
Correct: D
Rationale:
A. The student may not be attending to precision or is having difficulty understanding place value. The student may have mistaken the comma for a decimal point, or the student may have thought the decimal point in the stimulus was a comma.
B. The student may not understand the meaning of comparative symbols. The student may have thought the symbol in the stem stool for “is less than.”
C. The student may not be attending to precision or is having difficulty with decimal place value concepts. The student may have thought this choice had a greater value because the zero has been removed from the end. However, it has the same value as the decimal in the stimulus.
D. *Correct Answer;* The student has correctly compared decimals to complete the inequality.
Standards:
MGSE5.NBT.3
MGSE5.NBT.3b

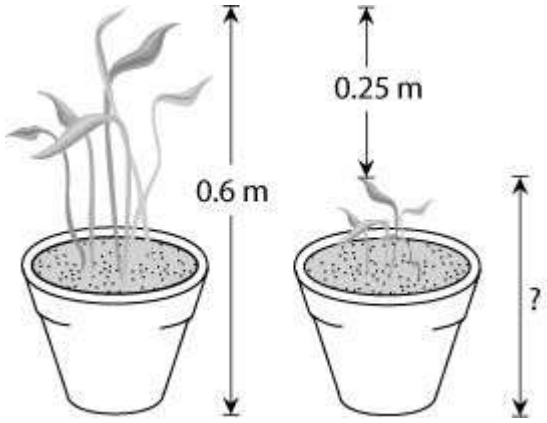
Directions: Answer the following question(s).

18 Carmen drank 2.71 liters of water. How much water did Carmen drink, rounded to the nearest liter?

A. 2 liters
B. 2.2 liters
C. 2.7 liters
D. 3 liters

Master ID: 3276392 Revision: 1
Correct: D
Rationale:
A. Student(s) may have thought the question asked to round 2.17 to the nearest liter instead of 2.71.
B. Student(s) may have thought the question asked to round to the nearest tenths of a liter, and misread the amount being rounded as 2.17.
C. Student(s) may have thought the question asked to round to the nearest tenths of a liter.
D. Correct answer
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.4

19 Mrs. Patel has two plants. The first plant has a height of 0.6 meter. The height of the second plant is 0.25 meter shorter.



What is the height of Mrs. Patel's second plant?

A. 0.3 meter
B. 0.35 meter
C. 0.4 meter
D. 0.85 meter

Master ID: 305164 Revision: 4
Correct: B
Rationale:
A. This is the result of rounding 0.25 to 0.3 and subtracting to get an estimated difference 0.6 - 0.3.
B. This is the result of correctly subtracting 0.6 - 0.25 = 0.35.
C. This is the result of using the graphic, and incorrectly subtracting 0.6 - 0.2.
D. This is the result of using the graphic and incorrectly solving by adding 0.6 + 0.25.
Rubric: 1 Point(s)

Directions: Answer the following question(s).

20 Solve.

9610 ÷ 62 =

A. 1415
B. 1055
C. 155
D. 15

Master ID: 3249206 Revision: 1
Correct: C
Rationale:
A. Student(s) may have completed the first steps in the problem correctly but may have made a mistake by thinking that 62 went into 341 four times instead of five. Student(s) may have subtracted the difference, 93, and then checked to see how many times 62 went into 93, which was once. Student(s) may have completed the rest of the problem correctly.
B. Student(s) may have started the problem by correctly dividing 62 into 96. Student(s) may have made a mistake by not bringing down the 1 after finding the difference, 34. Student(s) may have checked to see how many times 62 went into 34, which was zero. Student(s) may have completed the rest of the steps correctly.
C. Correct answer
D. Student(s) may have completed the first part of the division problem correctly. Student(s) may have ignored the zero in the dividend and thought to leave the problem without a remainder.
Rubric: 1 Point(s)

21 There are 56 classrooms at Mountain Elementary School. If there are 31 students in each classroom, how many students are there in all?

A. 1676
B. 1680
C. 1736
D. 1800

Master ID: 3253068 Revision: 1
Correct: C
Rationale:
A. Student(s) may have made a computational error when multiplying and may have though 6 times 3 was 12 rather than 18.
B. Student(s) may have made an error when initially writing out the problem and may have multiplied 56 by 30 rather than 31.
C. Correct answer
D. Student(s) may have rounded both numbers before using multiplication, multiplying 60 by 30 rather than the correct 56 by 31.
Rubric: 1 Point(s)
Standards:
MGSE5.NBT.5