

WISCONSIN DEPARTMENT OF  
**Public Instruction**

# **Mathematics Item Sampler Grade 5**



Answer the items below.

1. Which statement is true?
  - A. A rhombus is always a square.
  - B. A rectangle is always a rhombus.
  - C. A square is always a quadrilateral.
  - D. A parallelogram is always a rectangle.
  
2. What is 32.408 written in expanded form?
  - A.  $3 \times 10 + 2 \times 1 + 4 \times 10 + 8 \times 1000$
  - B.  $3 \times 10 + 2 \times 1 + 4 \times \frac{1}{10} + 8 \times \frac{1}{100}$
  - C.  $3 \times 10 + 2 \times 1 + 4 \times \frac{1}{10} + 8 \times \frac{1}{1000}$
  - D.  $3 \times 10 + 2 \times 1 + 4 \times \frac{1}{100} + 8 \times \frac{1}{1000}$

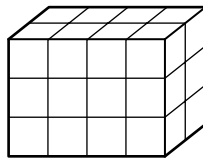
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3. Margaret walked  $\frac{5}{8}$  mile around the track. Then she ran  $\frac{9}{10}$  mile around the track. How many miles did Margaret walk and run around the track?

4. Which expression represents “4 times the difference of 64 and 18”?
- A.  $4 \times 64 + 18$
  - B.  $4 \times (64 + 18)$
  - C.  $4 \times 64 - 18$
  - D.  $4 \times (64 - 18)$

Go on to the next page.

5. A rectangular prism made from unit cubes is shown.



What is the volume, in cubic units, of the rectangular prism?

- A. 7
- B. 12
- C. 24
- D. 26
6. The table has four statements about the coordinate plane. Determine whether each statement is true or false.

	True	False
The origin is the point where the $x$ -axis and $y$ -axis intersect.		
The $x$ -axis and the $y$ -axis form perpendicular lines.		
The first number in an ordered pair tells how far to travel in the direction of the $y$ -axis.		
A point represented by the ordered pair $(0, 6)$ is on the $y$ -axis.		

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7. Silvia bought a rectangular piece of land that is  $2\frac{1}{3}$  miles long and  $\frac{3}{4}$  mile wide. How many square miles of land did Silvia buy?

- A.  $1\frac{3}{4}$
- B.  $2\frac{1}{4}$
- C.  $3\frac{1}{12}$
- D.  $6\frac{1}{6}$

8. An expression is shown.

$$5 \times (8 + 15 \div 3) + 7$$

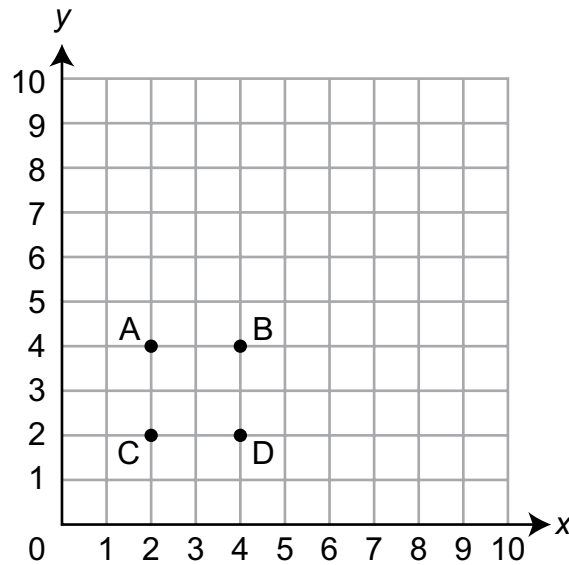
What is the value of the expression?



**STOP.**

Answer the items below.

1. Points A, B, C, and D are plotted on a coordinate grid as shown.



Which point is located at (4, 2)?

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

Go on to the next page.

2. Stan participated in the shot put throwing contest. His first throw traveled 8.96 **meters**. His second throw traveled 9 **centimeters** farther than his first throw. How far, in **meters**, did Stan's second throw travel?
- A. 8.969
  - B. 9.05
  - C. 9.86
  - D. 17.96
3. Andre ran the 40-yard dash in 4.385 seconds. What is 4.385 rounded to the nearest hundredth?

**Go on to the next page.**



4. Alex used  $\frac{3}{4}$  cup of brown sugar and  $1\frac{2}{3}$  cups of white sugar to bake some cookies. What is the total amount of sugar, in cups, Alex used to bake the cookies?

- A.  $1\frac{1}{4}$
- B.  $1\frac{5}{7}$
- C.  $2\frac{5}{12}$
- D.  $2\frac{2}{3}$

5. The table shows some of the numbers in pattern B and pattern N.

<b>Pattern B</b>	4	8	12	?	20
<b>Pattern N</b>	?	12	18	24	30

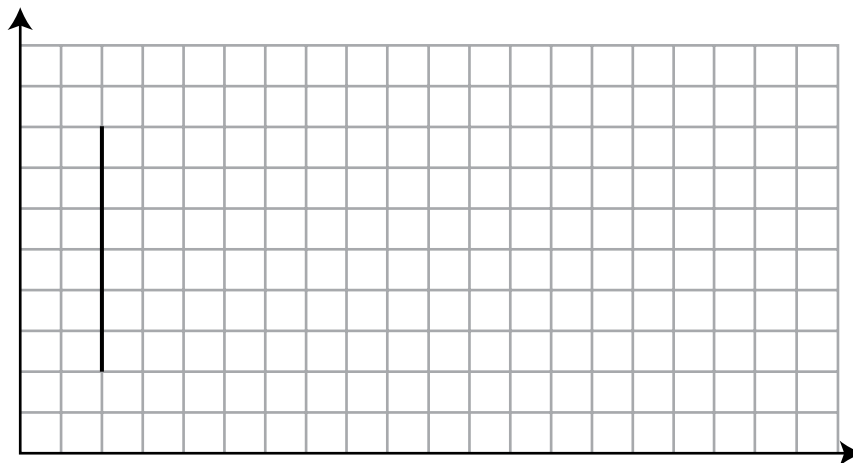
Which statement correctly describes the relationship between the corresponding numbers in pattern B and pattern N?

- A. The numbers in pattern N are 3 times the corresponding numbers in pattern B.
- B. The numbers in pattern B are 4 less than the corresponding numbers in pattern N.
- C. The numbers in pattern B divided by the corresponding numbers in pattern N equal  $\frac{2}{3}$ .
- D. The numbers in pattern B divided by the corresponding numbers in pattern N equal  $1\frac{1}{2}$ .

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6. A fish tank is in the shape of a rectangular prism. The volume of the fish tank can be found by multiplying the area of the base by the height. The volume of the fish tank is 600 cubic inches. The height of the fish tank is 10 inches. Draw a shape on the grid to represent the base of the fish tank. Each square on the grid represents 1 square inch. One side of the base has already been drawn.

**Amanda's Fish Tank**



7. The Janis School District ordered 27 cases of dry-erase markers. Each case contains 48 boxes of markers. How many boxes of markers did the Janis School District order?
- A. 324
  - B. 432
  - C. 856
  - D. 1,296



**STOP.**

# SUMMARY DATA

## Grade 5

Sample Number	Alignment	Answer Key	Depth of Knowledge	Annotations
<b>Session 1</b>				
1	5.G.3	C	1	<p>The question asks the student to categorize quadrilaterals.</p> <p>A. Incorrect. The student relates a rhombus to a square because they both have equal side lengths.</p> <p>B. Incorrect. The student relates a rhombus to a rectangle because they are both quadrilaterals.</p> <p>C. Correct. A square and a quadrilateral have four sides.</p> <p>D. Incorrect. The student relates a parallelogram to a rectangle because the opposite sides of a rectangle are parallel.</p>
2	5.NBT.3a	C	1	<p>The question asks the student to recognize a number written in expanded form.</p> <p>A. Incorrect. The student represents the decimal values as whole numbers.</p> <p>B. Incorrect. The student uses 8 in the hundredths place.</p> <p>C. Correct. The student expands the value correctly based on place value.</p> <p>D. Incorrect. The student uses 4 in the hundredths place.</p>
3	5.NF.2	Exemplar: $1\frac{21}{40}$	2	<p>The question asks the student to add fractions with different denominators.</p> <p>To receive full credit, the student must enter <math>1\frac{21}{40}</math> or an equivalent value.</p>

Grade 5

Sample Number	Alignment	Answer Key	Depth of Knowledge	Annotations
4	5.OA.2	D	1	<p>The question asks the student to recognize a numeric expression given a verbal description.</p> <p>A. Incorrect. The student uses addition to represent the difference and does not include parentheses.</p> <p>B. Incorrect. The student uses addition to represent the difference.</p> <p>C. Incorrect. The student does not include parentheses.</p> <p>D. Correct. The student uses parentheses to group the difference of 64 and 18.</p>
5	5.MD.4	C	1	<p>The question asks the student to determine the number of cubic units in a rectangular prism.</p> <p>A. Incorrect. The student adds the side lengths.</p> <p>B. Incorrect. The student counts half of the unit cubes.</p> <p>C. Correct. The student counts the correct number of unit cubes.</p> <p>D. Incorrect. The student counts the squares.</p>
6	5.G.1	See Annotations	1	<p>The question asks the student to recognize attributes of the coordinate plane.</p> <p>To receive full credit, the student must select True, True, False, True.</p>

Grade 5

Sample Number	Alignment	Answer Key	Depth of Knowledge	Annotations
7	5.NF.6	A	2	<p>The question asks the student to determine the area of a rectangle.</p> <p>A. Correct. The student multiplies <math>2\frac{1}{3} \times \frac{3}{4}</math>.</p> <p>B. Incorrect. The student multiplies <math>\frac{1}{3} \times \frac{3}{4}</math> and adds the product to two.</p> <p>C. Incorrect. The student adds <math>2\frac{1}{3} + \frac{3}{4}</math>.</p> <p>D. Incorrect. The student adds <math>2\frac{1}{3} + \frac{3}{4} + 2\frac{1}{3} + \frac{3}{4}</math>.</p>
8	5.OA.1	Exemplar: 72	1	<p>The question asks the student to evaluate the expression.</p> <p>To receive full credit, the student must enter 72 or an equivalent value.</p>
<b>Session 2</b>				
1	5.G.1	D	1	<p>The question asks the student to recognize an ordered pair on a coordinate grid.</p> <p>A. Incorrect. The student sequences the ordered pair as (y, x).</p> <p>B. Incorrect. The student identifies the x-coordinate as 4.</p> <p>C. Incorrect. The student identifies the y-coordinate as 2.</p> <p>D. Correct. The student sequences the ordered pair as (x, y).</p>

Grade 5

Sample Number	Alignment	Answer Key	Depth of Knowledge	Annotations
2	5.MD.1	B	2	<p>The question asks the student to convert centimeters to meters.</p> <p>A. Incorrect. The student puts 9 at the end of the first measurement.</p> <p>B. Correct. The student converts 9 centimeters to 0.09 meters and adds it to the first measurement.</p> <p>C. Incorrect. The student converts 9 centimeters to 0.9 meters and adds it to the first measurement.</p> <p>D. Incorrect. The student adds 9 to the beginning of the first measurement.</p>
3	5.NBT.4	Exemplar: 4.39	1	<p>The question asks the student to round a decimal value.</p> <p>To receive full credit, the student must enter 4.39.</p>
4	5.NF.2	C	2	<p>The question asks the student to add fractions with different denominators.</p> <p>A. Incorrect. The student incorrectly cross-simplifies the 3 from both fractions.</p> <p>B. Incorrect. The student adds the numerator and denominator digits.</p> <p>C. Correct. The student uses 12 as a common denominator to add the fractions.</p> <p>D. Incorrect. The student incorrectly converts the fractions when finding a common denominator.</p>

Grade 5

Sample Number	Alignment	Answer Key	Depth of Knowledge	Annotations
5	5.OA.3	C	2	<p>The question asks the student to compare two number patterns.</p> <p>A. Incorrect. The student multiplies the first value in the table for pattern B by 3 to get the first value shown in the table for pattern N.</p> <p>B. Incorrect. The student uses the second set of corresponding numbers and subtracts 4 from 12 to get 8.</p> <p>C. Correct. The student uses a pattern that applies to each set of corresponding numbers in the table.</p> <p>D. Incorrect. The student describes the relationship between corresponding numbers from pattern N to pattern B.</p>
6	5.MD.5	See Annotations	3	<p>The question asks the student to construct the base of a rectangular prism.</p> <p>To receive full credit, the student must construct a 6-by-10 rectangle on the grid.</p>
7	5.NBT.5	D	2	<p>The question asks the student to multiply two-digit numbers.</p> <p>A. Incorrect. The student multiplies <math>27 \times 48</math> and does not use 0 as a placeholder when using vertical multiplication.</p> <p>B. Incorrect. The student multiplies <math>48 \times 27</math> and does not use 0 as a placeholder when using vertical multiplication.</p> <p>C. Incorrect. The student multiplies the ones digits and the tens digits.</p> <p>D. Correct. The student multiplies <math>27 \times 48</math>.</p>