New York State Testing Program

Mathematics Test

Grade 7

2009 Scoring Guide

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer _____ millimeter(s)

On the lines below, explain how you determined your answer.

QUESTION 34

STRAND 1: NUMBER SENSE AND OPERATIONS

Complete and Correct Response:

- 1.06×10^{-7} (millimeter(s))

AND

- I moved the decimal point to the right until it was after the first non-zero number. This gave me 1.06. Since I moved it 7 places to the right, my exponent is -7, giving me 1.06×10^{-7}.

  OR other valid response

Score Points:

Apply 2-point holistic rubric.

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

0.000000106

Answer 1.06×10^{-7} millimeter(s)

On the lines below, explain how you determined your answer.

First I knew that a number has to be 1-9.9 so I moved the decimal seven places back. So I got 1.06×10^{-7}.

This response is complete and correct.

Score Point 2

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer 1.06×10^{7} millimeter(s)

On the lines below, explain how you determined your answer.

There are seven place values below the decimal which you must eliminate to reach 1.06.

This response is complete and correct.

Score Point 2

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer $1.06 \cdot 10^{-7}$ millimeter(s) 0.00000106

On the lines below, explain how you determined your answer.

from the decimal point to the right side of the 1, there are 7 spaces. To put something in scientific notation, the numbers go from 1–9 and numbers after that turn to decimals ex 1,0600 = $1.06 \cdot 10^{2}$

This response is only partially correct. A correct answer and sound mathematical procedure are provided; however, the explanation shown contains an incorrect mathematical statement.

Score Point 1

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer 1.06×10^{-7} millimeter(s)

On the lines below, explain how you determined your answer.

count the places the decimal moved.

This response is only partially correct. The first part is correct; however, the description in the second part does not provide a complete procedure for writing the radius in scientific notation.

Score Point 1

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer 10^7 millimeter(s)

On the lines below, explain how you determined your answer.

I moved the decimal 7 places and got 10^7

0.0000000106

This response is incorrect.

Score Point 0

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer 10^{-9} millimeter(s)

0.000000106
10.6×10^{-9}

On the lines below, explain how you determined your answer.

Because their a zeros before the decmal, so it has to be a negative power.

This response is incorrect.

Score Point 0

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2009 Practice Set

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer $.106 \times 10^{-6}$ millimeter(s)

On the lines below, explain how you determined your answer.

I got the answer .106 and then I counted all of the zeros from the decimal point to 106.

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer 10×1.06^{-7} millimeter(s)

On the lines below, explain how you determined your answer.

first we start at the number 1.06 then it goes backwards so the exponent is negative.

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer 1.06×10^{-7} millimeter(s)

On the lines below, explain how you determined your answer.

0.000000106

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer $106*10^{9}$ millimeter(s)

On the lines below, explain how you determined your answer.

I got my answer by moving the decimal all the way to the right and I got 106*10.^{9}

0.000000106

34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer 1.06×10^{-7} millimeter(s)

On the lines below, explain how you determined your answer.

Because you have to move the decimal point backwards since the the zeros are first, because it negative.

0.000000106

7th GRADE MATHEMATICS

Name:_____

PRACTICE SET ANSWER KEY

PS 1	(0-2)	
PS 2	(0-2)	
PS 3	(0-2)	
PS 4	(0-2)	
PS 5	(0-2)	
PS 6	(0-2)	
PS 7	(0-2)	
PS 8	(0-2)	
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PS 10	(0-2)	
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PS 35	(0-3)	
PS 36	(0-3)	
PS 37	(0-3)	
PS 38	(0-3)	
PS 39	(0-3)	
PS 40	(0-3)	