

MAT.08.CR.2.000EE.A.133 Claim 2

Sample Item ID:	MAT.08.CR.2.000EE.A.133
Grade:	08
Primary Claim:	Claim 2: Problem Solving Students can solve a range of complex well-posed problems in pure and applied mathematics, making productive use of knowledge and problem solving strategies.
Secondary Claim(s):	Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Primary Content Domain:	Expressions and Equations
Secondary Content Domain(s):	The Number System
Assessment Target(s):	2 A: Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace. 1 B: Work with radicals and integer exponents. 1 A: Know that there are numbers that are not rational, and approximate them by rational numbers.
Standard(s):	8.EE.3, 8.NS.2
Mathematical Practice(s):	1, 2, 4, 5, 6, 7
DOK:	2
Item Type:	CR
Score Points:	1
Difficulty:	H
Key:	187,000,000
Stimulus/Source:	http://heasarc.nasa.gov/docs/cosmic/planets.html ; http://neo.jpl.nasa.gov/cgi-bin/neo_elem?type=AMO;hmax=all;sort=name;sdir=ASC;max_rows=20;fmt=full;action=Display%20Table;show=1&from=20 (the semi-major axis is the average distance from the sun)
Target-specific attributes (e.g., accessibility issues):	Calculators should be turned on.
Notes:	The response space allows for a maximum of 14 digits. Commas and decimal points can be entered.

3908 Nyx is an asteroid between Mars and Jupiter. Let d represent the approximate distance from **3908 Nyx** to the Sun.

The average distance from Venus to the Sun is about 7×10^7 miles. The average distance from Jupiter to the Sun is about 5×10^8 miles.

At a certain time of year, the square distance from **3908 Nyx** to the Sun is equal to the product of the average distance from Venus to the Sun and the average distance from Jupiter to the Sun. This equation can be used to find the distance from **3908 Nyx** to the Sun, d , at this time of year.

$$d^2 = (7 \times 10^7)(5 \times 10^8)$$

Solve the equation for d . Round your answer to the nearest million.

$d =$ miles