MAT.HS.TE.1.000NQ.C.083

Sample Item ID:	MAT.HS.TE.1.000NQ.C.083
Grade:	HS
Claim(s):	**Claim 1: Concepts and Procedures** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 C: Reason quantitatively and use units to solve problems.
Content Domain:	Number and Quantity
Standard(s):	N-Q.1
Mathematical Practice(s):	1, 2, 7
DOK:	1
Item Type:	TE
Score Points:	1
Difficulty:	M
Key:	20 L, $\frac{1{,}000\ \text{mL}}{1\ \text{L}}$, $\frac{0.82\ \text{g}}{1\ \text{mL}}$, and $\frac{1\ \text{Kg}}{1{,}000\ \text{g}}$.
Stimulus/Source:	http://www.simetric.co.uk/si_liquids.htm
Target-specific Attributes (e.g., accessibility issues):	
Notes:	TE Template: Select and order

The density of kerosene is approximately $0.82 \frac{g}{mL}$.

Drag a rate or quantity from the box to each blank to calculate the mass, in kilograms, of 20 liters of kerosene.

___1___ × ___2___ × ___3___ × ___4___

20 L	820 kg	820 mL	2,000 mL
$\frac{0.82\ g}{1\ mL}$	$\frac{2000\ mL}{20\ L}$	$\frac{1\ L}{1{,}000\ mL}$	$\frac{1{,}000\ g}{1\ kg}$
$\frac{1\ kg}{1{,}000\ g}$	$\frac{1\ kg}{1{,}000\ L}$	$\frac{1{,}000\ mL}{1\ L}$	$\frac{1{,}000\ L}{1\ kg}$

Key:

A correct response to this item will receive 1 point for the following:

The student must choose the following four rates or quantities (order does not matter):
20 L, $\frac{1{,}000\ mL}{1\ L}$, $\frac{0.82\ g}{1\ mL}$, and $\frac{1\ Kg}{1{,}000\ g}$.

One such ordering would be: $20\ L \times \frac{1{,}000\ mL}{1\ L} \times \frac{0.82\ g}{1\ mL} \times \frac{1\ Kg}{1{,}000\ g}$.

TE Information:

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Template: Select and Order

Interaction Space Parameters:

A. *The image containing the regions:* the four blank lines with numbers:

[1] "1",
[2] "2",
[3] "3",
[4] "4"

B. *The images for the digital content objects:* 12 ratios with units starting with "20 L" and ending with "$\frac{1{,}000\ \text{L}}{1\ \text{kg}}$"; for the scoring data, the objects are labeled A-L starting with the top left (A="20 L") and going across and then down (L="$\frac{1{,}000\ \text{L}}{1\ \text{kg}}$").

Scoring Data: (order does not matter)
{AEIK}=1