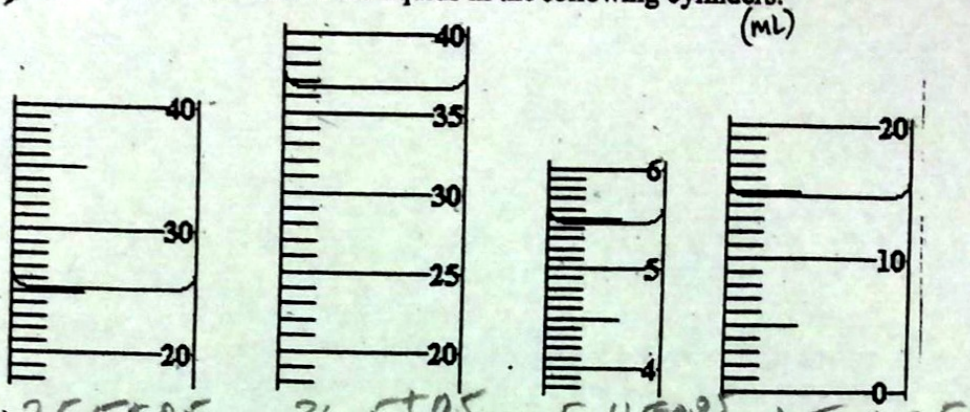
STEM Ch. 3 Quiz (A') Name: Key

1) Determine the volume of the liquids in the following cylinders:



a) 25.5 ± 0.5 b) 36.5 ± 0.5 c) 5.45 ± 0.05 d) 14.5 ± 0.5

2) Put the following numbers in proper scientific notation:

a. 402.0 4.020×10^2
b. 1034.22×10^{-5} 1.03422×10^{-2}
c. 1020040 1.02004×10^5
d. 3.22 3.22×10^0

3) Round the following numbers to 3 significant digits:

a. 0.0040566 0.00406
b. 9003400 9.00×10^6
c. 13.9987 14.0
d. 38.0020 38.0

4) Indicate how many significant digits each number has:

a. 780900 4
b. 0.0049020 5
c. 5.6600×10^{-3} 5
d. 80200000 3

5) Add the following three numbers and report your answer using significant figures:

2.5 cm + 0.50 cm + 0.055 cm = ? 3.055 cm

3.1 cm

6) Subtract the following numbers and report your answer using significant figures:

416 g – 210. g = ? 206 g

7) Multiply the following three numbers and report your answer to the correct number of significant figures:

0.020 cm x 50. cm x 11.1 cm = ? 11.1 cm^3

$11 cm^3$

8) Divide the following three numbers and report your answer to the correct number of significant figures:

0.530 g / 0.1010 mL = ? 5.247525 g/mL

5.25 g/mL

9) Express 21.2 $\frac{m}{s}$ in $\frac{Km}{hr}$

$21.2\frac{m}{s}\left(\frac{1km}{1000m}\right)\left(\frac{60s}{1min}\right)\left(\frac{60min}{1hr}\right) = 76.32\frac{km}{hr}$

$76.3\frac{km}{hr}$

10). Convert 0.03492 cm to Dm

$0.03492\,cm\left(\frac{1m}{100cm}\right)\left(\frac{1Dm}{10m}\right) = 3.492\times10^{-5}\,Dm$

11) A blacksmith has to put new shoes on a stable of 20 horses. Each shoe requires 3 nails. How can she calculate the number of nails that must be brought to the stable?

$20h\left(\frac{4s}{1h}\right)\left(\frac{3n}{1s}\right) = 240nails$

12) Express 0.06 L in cm^3

$0.06L\left(\frac{1000mL}{1L}\right)\left(\frac{1cm^3}{1mL}\right) = 60\,cm^3$

13) ~~You've just driven by a state trooper on Highway 26~~ travelling 17850 mm/s. Her lights and siren indicate that she'd like you to pull over. Is she going to give you a speeding ticket (posted speed limit is 55 mph) or a high-five for safe driving?

$17850\frac{mm}{s}\left(\frac{1m}{1000mm}\right)\left(\frac{1km}{1000m}\right)\left(\frac{0.6214mi}{1km}\right)\left(\frac{60s}{1min}\right)\left(\frac{60min}{1hr}\right)$

$= 39.93\,miles/hr$ high-five or a ticket for going to slow.

14) Tina's car gets 27 miles per gallon on the freeway. She is driving from San Francisco to Boston, a 3050 mile distance. She will spend an average of $3.56 per gallon on fuel. Assuming all of her driving is on the freeway, how much can she plan on spending on gas for this trip?

$3050miles\left(\frac{1gal}{27miles}\right)\left(\frac{\$3.56}{1gal}\right) = \$402.148$ or $\$400$

$\Rightarrow \$4.0\times10^2$