

10/11 Review

Sig Figs $0.000\overline{777}$ Leading zeros - NOT
3sf

$777\overline{0000}$ No decimal - NOT
3sf

777.0000 decimal and zeros are behind a non zero ARE
7sf

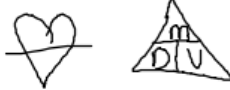
Sci notation

accuracy - close to accepted

precision - repeatability

$$\% \text{ error} = \left| \frac{\text{measured} - \text{accepted}}{\text{accepted}} \right| \times 100$$

density = $\frac{\text{mass}}{\text{volume}}$



$52 \text{ ml} = ? \text{ L}$

SI (metric prefixes)

- BIG
- G 1G = 1000 000 000 parts
 - M 1M = 1000 000 parts ✓
 - K 1K = 1000 parts
 - H 1H = 100 parts
 - Da 1 Da = 10 parts

$52 \text{ ml} \times \frac{1 \text{ L}}{1000 \text{ ml}}$

$6.2 \text{ Mm} = ? \mu\text{m}$

- Small pieces
- d 1 base = 10 deci
 - c 1 base = 100 centi
 - m 1 base = 1000 milli ✓
 - μ 1 base = 1000 000 micro ✓
 - n 1 base = 1000 000 000 nano

$\frac{6.2 \text{ Mm} \times 1000 000 \text{ m} \times 1000 000 \mu\text{m}}{1 \text{ Mm} \quad 1 \text{ m}} = 6.2 \times 10^{12} \mu\text{m}$

$34.8 \text{ L} = ? \text{ dl}$

$34.8 \text{ L} \times \frac{10 \text{ dl}}{1 \text{ L}} = 348 \text{ dl}$

$7.396 \text{ Km} = ? \text{ mm}$

$7.396 \text{ Km} \times \frac{1000 \text{ m}}{1 \text{ Km}} \times \frac{1000 \text{ mm}}{1 \text{ m}} = 7.396 \times 10^6 \text{ mm}$

$52.4 \text{ cm/sec} = ? \text{ Dam/hr}$

$\frac{52.4 \text{ cm}}{1 \text{ sec}} \times \frac{1 \text{ m}}{100 \text{ cm}} \times \frac{1 \text{ Dam}}{10 \text{ m}} \times \frac{60 \text{ sec}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = 189 \frac{\text{Dam}}{\text{hr}}$

10/11 Math Unit Review

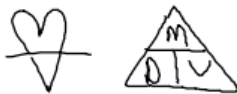
Sig Figs Leading zero - NOT 0.000777 3sf
 Trailing zero - NOT 7770000 3sf
 (No Decimal)
 Trailing zero + Decimal 777.0000 7sf
 all zeros behind non-zero ARE sf.
 0.0077700 5sf

Sci notation

accuracy - result is close to accepted

precision - consistency or repeatability

$$\% \text{ error} = \left| \frac{(\text{measured} - \text{accepted})}{\text{accepted}} \right| \times 100$$

Density = $\frac{m}{V}$ 

SI (metric) units

BIG 1 —	G	1G = 1000 000 000 pieces	52ml = ? L
	M	1M = 1000 000 pieces	
	K	1K = 1000 pieces	$52 \text{ ml} \times \frac{1 \text{ L}}{1000 \text{ ml}} = 0.052 \text{ L}$
	H	1H = 100 pieces ✓	
	Da	1Da = 10 pieces	
tiny pieces # —	Base		$7.62 \text{ km} \rightarrow \text{? } \mu\text{m}$
	d	1 base = 10 deci	$7.62 \text{ km} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{1000000 \mu\text{m}}{1 \text{ m}}$
	c	1 base = 100 centi ✓	
	m	1 base = 1000 milli ✓	$7.62 \times 10^9 \mu\text{m}$
	μ	1 base = 1 000 000 micro	
n	1 base = 1 000 000 000 nano		

$52.3 \text{ cm/sec} = ? \text{ Hm/hr}$ $\frac{\text{cm}}{\text{sec}} \xrightarrow{\text{min}} \frac{\text{Hm}}{\text{hr}}$

$$\frac{52.3 \text{ cm}}{\text{sec}} \times \frac{1 \text{ m}}{100 \text{ cm}} \times \frac{1 \text{ Hm}}{100 \text{ m}} \times \frac{60 \text{ sec}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = \boxed{18.8 \frac{\text{Hm}}{\text{hr}}}$$

3sf

10/11/17 Math Unit Review

1. C * Derived requires more than
one measurement

2. D

3. B

4. C

5. B

6. D * exception b/c gram
is so small

7. A

8. A

9. C

10. C

11. A

12. D

13. D

14. C

15. D ml \rightarrow L \rightarrow d

16. D

17. D

18. C

19. B

20. D

21. C

22. C

23. D

24. D

25. A

$$26. 5.50 \text{ mL} \times \frac{8.93 \text{ g}}{1 \text{ mL}} = \boxed{49.1 \text{ g}}$$

$$27. \frac{193.0 \text{ g}}{10.0 \text{ mL}} = \boxed{19.30 \text{ g/mL}}$$

$$28. \frac{0.33 \text{ g}}{3.5 \text{ g/mL}} = \boxed{0.094 \text{ mL}}$$

29 & 30 SKIP

To Review make yourself a Study guide that includes the items you had difficulty with.

For example: Base Units

meter = distance

liter = volume (amount of space something takes up)

gram* = mass (amount of matter)

* gram is so small that the official base unit of mass is kilogram.

ALL
BIG units
Give them the
1 in a conversion

- Giga = 1000 000 000 base
- Mega = 1000 000 base
- Kilo = 1000 base
- Hecto = 100 base
- Deca = 10 base

All little pieces
they get #
in a conversion

- BASE
- 1 base = 10 deci
 - 1 base = 100 centi
 - 1 base = 1000 milli
 - 1 base = 1000 000 micro

Example:

52 ml → L

$$52 \text{ ml} \times \frac{1 \text{ L}}{1000 \text{ ml}}$$

