

Name \_\_\_\_\_

Packet 1 Review Sheet

1. Which milligram contains a total of four significant figures?

- a. 0.30310mg      b. 3010mg      c. 3100.mg      d. 30001mg

2. Which measurement contains three significant figures?

- a. 0.05g      b. 0.050      c. 0.056      d. 0.0563

3. Which measurement has the greatest number of significant figures?

- a. 6.060mg      b. 60.6mg      c. 606mg      d. 60600mg

*least # of D.P.*

4. Expressed to the correct number of significant figures, what is the correct sum of  $3.04\text{m} + 4.134\text{m} + 6.1\text{m}$ ?

- a. 13m      b. 13.3m      c. 13.27m      d. 13.274m

5. A cube has a volume of  $8.0\text{cm}^3$  and a mass of 21.6g. What is the density, expressed to the correct number of significant figures?

- a.  $2.7\text{g}/\text{cm}^3$       b.  $2.70\text{g}/\text{cm}^3$       c.  $0.37\text{g}/\text{cm}^3$       d.  $0.370\text{g}/\text{cm}^3$

6. What is the sum of  $0.0421\text{g} + 5.263\text{g} + 2.13\text{g}$  to the correct number of significant figures?

- a. 7g      b. 7.4g      c. 7.44g      d. 7.435g

7. The mass of a solid is 3.60g and its volume is  $1.8\text{cm}^3$ . What is the density of the solid, expressed to the correct number of significant figures?

- a.  $12\text{g}/\text{cm}^3$       b.  $2.0\text{g}/\text{cm}^3$       c.  $0.5\text{g}/\text{cm}^3$       d.  $0.50\text{g}/\text{cm}^3$

8. A cubic object has sides with the lengths of 6.0cm, 3.0cm, and 2.0cm. The mass of the cube is 162.2g. What is its density to the correct number of significant figures?

- a.  $0.22\text{g}/\text{cm}^3$       b.  $0.2219\text{g}/\text{cm}^3$       c.  $4.5\text{g}/\text{cm}^3$       d.  $4.505\text{g}/\text{cm}^3$

9. The volume of a gas is 22L. The density of the gas is 1.35 g/L. What is the mass of the gas sample, expressed to the correct number of significant figures?

- a. 16.7g      b. 17g      c. 30. g      d. 30.0g

$m = Vd = (22\text{L})(1.35\text{g/L})$

10. What is the quotient of 8.01g divided by 3.127ml, expressed to the correct number of significant figures?

- a. 2.6g/ml      b. 2.56g/ml      c. 2.5562g/ml      d. 2.5616g/ml

11. What is the product of  $2.324\text{m} \times 1.11\text{m}$ , expressed to the correct number of significant figures?

- a.  $2.58\text{m}^2$       b.  $2.5780\text{m}^2$       c.  $2.5796\text{m}^2$       d.  $2.57964\text{m}^2$

12. A student determines the density of an object to be 3.22 g/ml. If the accepted value is 3.87 g/ml, what is the student's percent error?

- a. 16.4%      b. 16.8%      c. 21.5%      d. 8.0%

13. Subtract the following numbers, and express your answer in the correct number of significant figures:

$56.32\text{g} - 14.1\text{g} =$

- a. 42.22g      b. 42.23g      c. 42.2g      d. 42.02g

14. What is the difference of the following numbers, expressed to the correct numbers of significant figures?

$$9876.2\text{g} - 500.28\text{g}$$

a. 9375.9g

b. 9375.92g

c. 9376.0g

d. 10376.42g

15. A student determines the mass of an object to 45.67g. What is the percent error if the accepted value is 43.25g?

a. 6.5%

b. 5.6%

c. 11.2%

d. 9.2%

16. Convert the following numbers to scientific notation:

a) 4530000

$$4.53 \times 10^6$$

b) 0.0078

$$7.8 \times 10^{-3}$$

c) 574000000

$$5.74 \times 10^8$$

d) 0.023

$$2.3 \times 10^{-2}$$

17. Take the following numbers out of scientific notation:

a)  $5.62 \times 10^4$

$$56,200$$

b)  $4.01 \times 10^{-8}$

$$.0000000401$$

c)  $7.32 \times 10^2$

$$732$$

d)  $2.22 \times 10^{-5}$

$$.0000222$$

18. Add the following using the rules for significant figures:

a)  $35.7\text{ml} + 432.33\text{ml} + 5142.312\text{ml} = 5610.3\text{ml}$

b)  $0.027\text{ml} + 0.0023\text{ml} = 0.029\text{ml}$

19. Determine the mass of the substance that has a density of 4.0g/ml and a volume of 2.55ml.

$$d = \frac{m}{V}; \quad m = Vd = (2.55\text{ml}) (4.0\frac{\text{g}}{\text{ml}})$$

$$m = 10.2\text{g} = 10.\text{g}$$

20. Determine the percent error for a student who measures the mass of an object to be 6.03g, and the volume to be 3.20ml with an accepted density value of 2.00g/ml.

$$d = \frac{m}{V} = \frac{6.03\text{g}}{3.20\text{ml}} = 1.88\text{g/ml}$$

$$\% \text{ error} = \frac{1.88 - 2.00}{2.00} \times 100 = -6\%$$

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