

Review Worksheet for Unit 1B Test

Name Key

Date \_\_\_\_\_

Do the following one-step and multi-step unit conversions. Round to 2 decimal places.

1. Fifty mph is how many feet per second?

$$\frac{50 \text{ miles}}{1 \text{ hr.}} \cdot \frac{5280 \text{ ft.}}{1 \text{ mile}} \cdot \frac{1 \text{ hr.}}{60 \text{ min.}} \cdot \frac{1 \text{ min.}}{60 \text{ sec.}} = \boxed{73.33 \text{ ft./sec.}}$$

- There are 0.034 ounces in one milliliter
- There are 0.454 kg in one pound
- There are 1.6 kilometers in one mile
- There are 73 gallons in 2 barrels
- There are 1.05 quarts in one liter

2. Convert 15 cm to meters

$$\underline{15} \quad \boxed{0.15 \text{ meters}}$$

3. Convert 7 quarts to liters.

$$\frac{7 \text{ qts.}}{1} \cdot \frac{1 \text{ L}}{1.05 \text{ qts.}} = \boxed{6.67 \text{ L}}$$

4. A bowl of cereal weighs 60 grams. How heavy is it in kg?

$$\underline{0.060} \quad \boxed{0.06 \text{ Kg}}$$

5. Convert 12 kilometers to feet.

$$\frac{12 \text{ km}}{1} \cdot \frac{1 \text{ mile}}{1.6 \text{ km}} \cdot \frac{5280 \text{ ft.}}{1 \text{ mile}} = \boxed{39,600 \text{ feet}}$$

6. One energy bar has a mass of 85 grams. What is the mass of 12 energy bars? Is that more or less than 1 kg?

$$85 \text{ g} \times 12 = 1,020 \text{ grams} \quad \boxed{\text{more}}$$

$$1 \text{ Kg} = 1000 \text{ grams}$$

7. How long does a car traveling at 6600 ft/min take to travel 100 miles, in hours (Hint:  $d=rt$ )?

$$\frac{6600 \text{ ft.}}{1 \text{ min.}} \cdot \frac{1 \text{ mile}}{5280 \text{ ft.}} \cdot \frac{60 \text{ min.}}{1 \text{ hr.}} = 75 \text{ mph} \quad t = \frac{100}{75} = 1.\bar{3}$$

$$\boxed{1 \text{ hr. } 20 \text{ min.}}$$

8. Sadie doing the Ice Bucket Challenge and has 14 fl oz in her bucket. She adds 3 more cups of water to the bucket. How much fluid will Sadie have in her bucket to pour on her head?

$$\frac{3 \text{ cups}}{1} \cdot \frac{8 \text{ oz.}}{1 \text{ cup}} = 24 \text{ oz.} \quad 24 + 14 = \boxed{38 \text{ ounces}}$$

9. A triangle has a base of 9 ft and a height of 36 inches. What is the area of the triangle in yards?  
(Use  $A = (1/2)bh$ )

$$\frac{9 \text{ ft}}{1} \cdot \frac{1 \text{ yd.}}{3 \text{ ft.}} = 3 \text{ yds.} \quad 36 \text{ in.} = 3 \text{ ft.} = 1 \text{ yd.}$$

$$A = \frac{1}{2}(3)(1) = \frac{3}{2} = \boxed{1.5 \text{ yd}^2}$$

10. Cameron needs to take 10 mL of medicine two times a day for 10 days. Her pharmacist has filled 1 bottle with .13 L. How much will the second bottle contain?

$$10 \text{ mL} \times 2 = 20 \text{ mL} \times 10 = 200 \text{ mL}$$

$$200 \text{ mL} = 0.2 \text{ L}$$

$$0.2 \text{ L} - 0.13 \text{ L} = \boxed{0.07 \text{ L}}$$

11. A panther can run 60 miles per hour. A leopard can run 5,104 feet per minute. A gazelle is 150 feet away from both animals. Which will get to the gazelle first? Justify your answer.

$$\frac{5104 \text{ feet}}{1 \text{ min.}} \cdot \frac{1 \text{ mile}}{5280 \text{ ft.}} \cdot \frac{60 \text{ min.}}{1 \text{ hr.}} = 58 \text{ mph}$$

**Panther**  
Runs Faster

12. Sam has \$15 in his wallet. He wants to buy something that costs 48 Euros. If the exchange rate is \$1 = .86 Euros, how much more money does Sam need to get from the ATM?

$$\frac{48 \text{ Euros}}{1} \cdot \frac{\$1}{0.86 \text{ Euros}} = \$55.81$$

$$\boxed{\$40.81}$$

from ATM

13. Katie has 6 gallons of liquid and 2 coolers she could put her liquid in. The red cooler can fit 50 pints of liquid and the purple cooler can fit 92 cups of liquid. Which cooler should Katie use to store her liquid?

$$\text{Red: } \frac{50 \text{ pts.}}{1} \cdot \frac{1 \text{ qt.}}{2 \text{ pts.}} \cdot \frac{1 \text{ gal.}}{4 \text{ qts.}} = 6.25 \text{ gal.}$$

$$\text{Purple: } \frac{92 \text{ cups}}{1} \cdot \frac{1 \text{ pt.}}{2 \text{ cups}} \cdot \frac{1 \text{ qt.}}{2 \text{ pts.}} \cdot \frac{1 \text{ gal.}}{4 \text{ qts.}} = 5.75 \text{ gal.}$$

**Red Cooler**

14. Ann is measuring the capacity of a 16 oz water bottle. She first uses a measuring cup and finds that the water bottle hold 16.2 oz of water. She then uses a graduated cylinder and finds that the water bottle holds 16.18 oz of water. Which is more precise measurement? Which is the more precise tool?

16.18 oz. is the more precise measurement

The graduated cylinder is the more precise tool.

15. Jesse mixed 8.24 oz of paprika with 12.23 oz of pepper. She now has 20.5 oz of spices. Would this be an example of an exact, approximate, or estimated answer?

$$8.24 + 12.23 = 20.47 \text{ oz.}$$

Rounded at the end so **approximate**

16. Bill invited 150 people to his wedding, but thinks only 125 people will show up. He pays the caterer \$50 for 125 people and owes him \$6,250. Would this be an example of an exact, approximate, or estimated answer?

Rounded at the beginning so **estimated**

17. Which is a more precise number and why? 15.33 or  $\sqrt{235}$  ?

**$\sqrt{235}$**  because it is exact + not rounded

18. If you were going to measure the amount of flour in a recipe for a cake what unit would be the most appropriate to use?

A) Gallons

**B) Cups**

C) Teaspoons

19. Would the following scenarios be an example of approximation or estimation?

A) The number of party favors to prepare for George's 4<sup>th</sup> birthday party. **estimation**

B) The length of a diagonal in a rectangle. **approximation**

20. If you were trying to figure out how long until the first day of Fall what would be the most appropriate unit to use?

**A) Days**

B) Seconds

C) Hours

Review Problems:

21.  $(4x^2 - 3x + 8) - (2x^2 - 6x - 9)$

$$4x^2 - 3x + 8 - 2x^2 + 6x + 9$$

$$= \boxed{2x^2 + 3x + 17}$$

23.  $-2x(5x^3 + 3x^2 - 11x)$

$$\boxed{-10x^4 - 6x^3 + 22x^2}$$

25.  $\sqrt{18a^6}$



$$\boxed{3a^3\sqrt{2}}$$

22.  $(3x - 4)^2$

$$(3x - 4)(3x - 4)$$

$$9x^2 - 12x - 12x + 16$$

$$= \boxed{9x^2 - 24x + 16}$$

24.  $(x - 2)(3x^2 + 6x + 1)$

$$3x^3 + 6x^2 + x - 6x^2 - 12x - 2$$

$$= \boxed{3x^3 - 11x - 2}$$

26.  $(-2\sqrt{15})(4\sqrt{10})$

$$-8\sqrt{15 \cdot 10}$$

$$\boxed{-40\sqrt{6}}$$

27. Find the area of a rectangle with the following dimensions:

Width =  $2x - 2$

Length =  $3x + 4$

$$A = (2x - 2)(3x + 4) = 6x^2 + 8x - 6x - 8$$

$$\boxed{A = 6x^2 + 2x - 8 \text{ units}^2}$$

28. What is the perimeter of a triangle with the following side lengths?

$\sqrt{12}$ ,  $3\sqrt{27}$ ,  $2\sqrt{48}$

$$P = \sqrt{12} + 3\sqrt{27} + 2\sqrt{48}$$

$$2\sqrt{3} + 9\sqrt{3} + 8\sqrt{3}$$

$$\boxed{P = 19\sqrt{3} \text{ units}}$$