Unit 1 Quiz Review

Name: _____ Date: _____

Do the following one-step and multi-step unit conversions. Round to 3 decimal places.

1. Fifty mph is how many feet per second?

$$\frac{50 \text{ miles}}{1 \text{ hr}} \cdot \frac{5280 \text{ ft}}{1 \text{ mile}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = \frac{264{,}000}{3600} = 73.3 \text{ ft/sec}$$

2. Convert 15 dm to meters

$$15 \text{ dm} = 1.5 \text{ meters}$$

3. Convert 7 quarts to liters.

$$7 \text{ qt} \cdot \frac{1 \text{ L}}{1.05 \text{ qt}} = 6.67 \text{ liters}$$

4. 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?

$85 \text{ g} * 12 = 1020 \text{ grams}$

$1020 \text{ grams} = 1.02 \text{ kg}$

This is more than 1 kg.

5. How long does a car traveling at 75 mph take to travel 100 miles, in hours (Hint: d=rt)?

r d

$$\frac{100 \text{ miles}}{75} = \frac{75 \text{ mph} \, t}{75}$$

$t = 1.33 \text{ hours}$

6. 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?

$$3 \text{ cups} \cdot \frac{8 \text{ floz}}{1 \text{ cup}} = 24 \text{ floz}$$

$24 \text{ floz} + 14 \text{ floz} = 38 \text{ floz}$

or

$$14 \text{ floz} \cdot \frac{1 \text{ cups}}{8 \text{ floz}} = 1.75 \text{ cups}$$

$3 \text{ cups} + 1.75 \text{ cup} = 4.75 \text{ cups}$

7. 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)

$$9 \text{ ft} \cdot \frac{1 \text{ yd}}{3 \text{ ft}} = 3 \text{ yds}$$

$$36 \text{ in} \cdot \frac{1 \text{ ft}}{12 \text{ in}} \cdot \frac{1 \text{ yd}}{3 \text{ ft}} = 1 \text{ yd}$$

$A = \frac{1}{2}(3)(1)$

$A = \frac{3}{2}$ or 1.5 yd^2

8. Solve for y. $3x - 6y = 12$

$-3x \quad -3x$

$\frac{-6y}{-6} = \frac{-3x}{-6} + \frac{12}{-6}$

$\boxed{y = \frac{1}{2}x - 2}$

9. Solve for m. $\frac{4m+8}{6} = n$

$4m + 8 = 6n$

$-8 \quad -8$

$\frac{4m}{4} = \frac{6n}{4} - \frac{8}{4}$

$\boxed{m = \frac{3}{2}n - 2}$

10. Solve for x. $(x-10) = \frac{1}{2}(y-8)$

$x - 10 = \frac{1}{2}y - 4$

$+10 \quad +10$

$\boxed{x = \frac{1}{2}y + 6}$

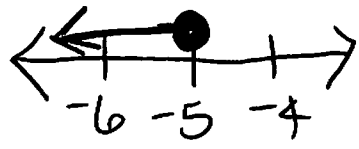
11. $8p - 3(p-6) \leq -7$

$8p - 3p + 18 \leq -7$

$5p + 18 \leq -7$

$5p \leq -25$

$\boxed{p \leq -5}$



12. $5x - 10 = 7x + 12$

$\frac{-2x}{-2} = \frac{22}{-2}$

$\boxed{x = -11}$

13. $\frac{-2}{3}x = 16$

$\frac{-2x}{-2} = \frac{48}{-2}$

$\boxed{x = -24}$

14. How many terms are in the expression $5x^2 - 5x + 6$?

① ② ③

3 terms

15. What are the terms, coefficients, variables, and constants, factors in the expression $5xy^2 - 5x + 6$?

Terms: $5xy^2, -5x, 6$

Coefficients: $5, -5,$

Variables: x, y

constant: 6

Factors: $5 \cdot x \cdot y^2, -5 \cdot x,$

$2 \cdot 3$ or $1 \cdot 6$

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16. Sabrina wants to have an average of at least 90 on her quizzes. If she took three quizzes and earned a 95, 86 and 82, what is the lowest grade she has to earn on the fourth quiz?

$\frac{95 + 86 + 82 + x}{4} \geq 90$

$\boxed{x \geq 97}$

$\frac{263 + x}{4} \geq 90$

$263 + x \geq 360$

$-263 \quad -263$

17. Write an algebraic expression for the following statements

a. the cube of number increased by 12 → x^3+12
b. 8 times the difference of a number and 1 → $8(x-1)$
c. the quotient of 5 and twice a number → $\frac{5}{2x}$

18. Write a verbal expression for the following algebraic expression:
a. $3x-7$ seven less than 3 times a number
b. $7+x^4$ seven increased by a number raised to the fourth power
c. $\frac{x+9}{4}$ the sum of a number and 9 divided by 4.

19. Destiny is trying to find the sum of 3 consecutive even integers. Their sum is 66. Find the 3 numbers.

$x + x+2 + x+4 = 66$

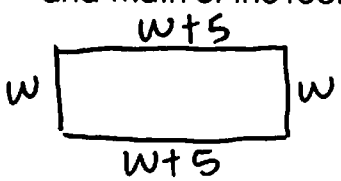
$3x+6 = 66$

$3x = 60$

$x = 20$

20, 22, 24

20. The length of a rectangle is 5 inches more than the width. The perimeter is 126. Find the length and width of the rectangle.



$w+w+5+w+w+5=126$

$4w+10=126$

$4w=116$

$w=29$ $l=34$

21. On an algebra test, the highest grade was 36 points higher than the lowest grade. The sum of the two grades was 154. Find the lowest grade.

$h = l+36$

$l+l+36=154$

$2l+36=154$

$2l=118$

$l=59$

22. Bob and Sue are going to Willy Wonka World during the 3 day weekend. It costs $15 to enter the park and take the tour. If every piece of candy that they eat along the way costs them $0.25, what is an equation that represents how much money Sue will spend?

$C = .25x + 15$

23. Write an inequality that represents 3 more than a number is at least 7.

$3+x \geq 7$

24. Write an inequality that represents 5 less than a number is at most 4.

$x-5 \leq 4$