Acc Algebra 1 | Unit 3 – Relationship Between Quantities | 3.7 – Test Review

Name _____ Date _____

1. In the table below, solve the equation and write the appropriate properties in the given blanks

Equations	Steps
$12x - 4 + 3x = 47$	Given
$15x - 4 = 47$	Associative Property
$15x = 51$	Addition Property of Equality
$x = 3.4$	Division Property of Equality

2. For the following statement, write an equation that represents the given situation: Landon is going to use a computer at an internet cafe. The cafe has an initial charge of $10 to use a computer and an additional charge of $0.80 for every minute of use. Write an equation for C, in terms of t, representing the total cost of using a computer for t minutes at the internet cafe.

$y = mx + b$

$C = mt + b$

$\boxed{C = 0.80t + 10}$

3. For the following statement, write an equation that represents the given situation (SHOW YOUR WORK): Emma is moving and must rent a truck. In addition to an initial fee, the rental company charges a fee of $2.50 per mile driven. If Emma were to drive 2 miles, the total cost would be $25. Write an equation for C, in terms of m, representing the total cost of renting the truck if Emma were to drive m miles.

$y = mx + b$

$C = md + b$

$\boxed{C = 2.50d + 20}$

$25 = 2.50(2) + b$

$25 = 5 + b$

$20 = b$

4.

	Natural	Whole	Integers	Rational	Irrational	Real	Imaginary	Complex
4/9				✓		✓		✓
12	✓	✓	✓	✓		✓		✓

For all of the following problems, you **must** show your work using the dimensional analysis methods from this unit to receive credit. If necessary, round your answers to 2 decimal places.

16 ounces = 1 pound	1 ton = 2000 pounds	1 school year = 180 days
1 mile = 5280 feet	660 feet = 1 furlong	1 inch = 2.54 cm
1 year = 365 days	20 drops = 1mL	24 hours = 1 day
1 carat = .2 grams	2.2 pounds = 1kg	52 days = 1 dog year

5. Silver costs $14.77 per ounce. How many kilograms could you purchase for $85,300?

$\frac{\$85,300}{1} \cdot \frac{1\text{ oz}}{\$14.77} \cdot \frac{1\text{ lb}}{16\text{ oz}} \cdot \frac{1\text{ kg}}{2.2\text{ lbs}} = \frac{\$85,300}{519.90} = \boxed{164.07\text{ kg}}$

6. The dreaded Mount Doom stands 4,500 feet tall. How tall is it in decimeters? K H Dk U D C M

$\frac{4,500\text{ ft}}{1} \cdot \frac{12\text{ in}}{1\text{ ft}} \cdot \frac{2.54\text{ cm}}{1\text{ inch}} \cdot \frac{1\text{ dm}}{10\text{ cm}} = \frac{137,160}{10} = \boxed{13,716\text{ dm}}$

7. If you are travelling 85,000 ft/sec, how fast are you going in miles/hour?

$\frac{85,000\text{ ft}}{1\text{ sec}} \cdot \frac{1\text{ mi}}{5280\text{ ft}} \cdot \frac{60\text{ sec}}{1\text{ min}} \cdot \frac{60\text{ min}}{1\text{ hr}} = \frac{306,000,000}{5,280} = \boxed{57,954.55\ \frac{\text{mi}}{\text{hr}}}$

Solve each of the following for the indicated variable. **You must show your work to receive credit.**

8. $\frac{p}{4} - e = t$

$+e \quad +e$

$\frac{p}{4} = e + t$

$\cdot 4 \quad \cdot 4 \quad \cdot 4$

$p = 4e + 4t$ or $4(e+t)$

$\boxed{p = 4e + 4t}$

9. $D = \frac{1}{2}e(9k + h)$

$\cdot 2 \quad \cdot 2$

$\frac{2D}{e} = e(9k+h)$

$\frac{2D}{e} = 9k + h$

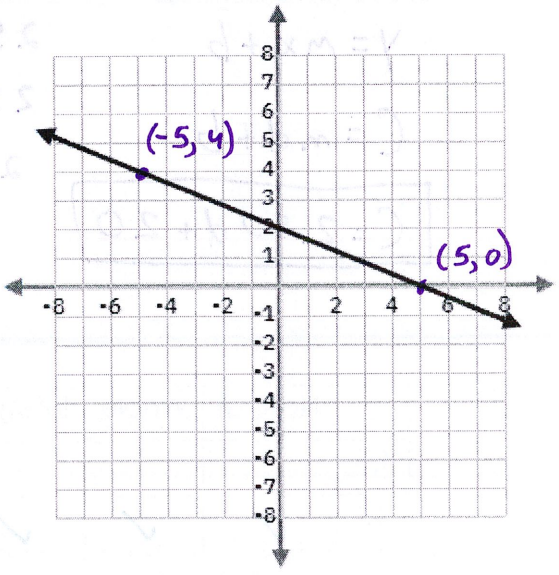
$-9k \quad -9k$

$\frac{2D}{e} - 9k = h$

$\boxed{h = \frac{2D}{e} - 9k}$

REVIEW from Units 1 and 2

10.



Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

Increasing: Ø, N/A Decreasing: $(-\infty, \infty)$

x – int in function notation: $f(5) = 0$

y-int: $(0, 2)$

Rate of Change [-5, 5]: $\frac{0-4}{5-(-5)} = \frac{-4}{10} = \boxed{\frac{-2}{5}}$

End Behavior: $x \to -\infty$, $f(x) \to \infty$

$x \to \infty$, $f(x) \to -\infty$

Graph the following system by the method of your choice:

11. $\begin{matrix} 4(x+2y=-7) \\ -7x-8y=1 \end{matrix}$ $\Rightarrow$

$4x+8y=-28$

$+\ -7x-8y=1$

$-3x = -27$

$x = 9$

$9+2y=-7$

$2y=-16$

$y=-8$

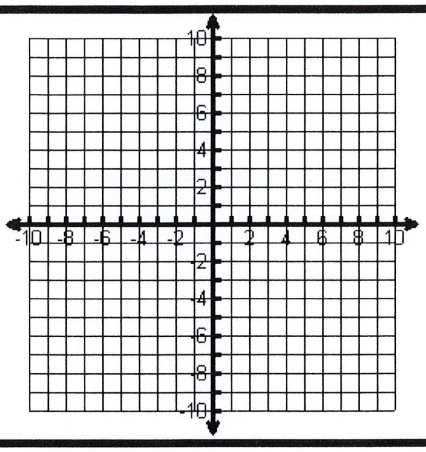
$(9,-8)$

$9+2(-8)=-7$

$9-16=-7$ ✓

$-7(9)-8(-8)=1$

$-63+64=1$ ✓



The following section is free response on the review but will be **multiple choice** on the test:

K H D U Sh C M

12. Each member of the Cross-Country Team has to eat .023 kg of pasta the night before the big race. If there are 15 members of the team, how many dg of pasta will they eat in total?

.023 kg = 230 dg per member

$230 \times 15 =$ 3,450 dg

13. **Looking at your answer for #2**, what are the term(s), coefficient(s), and constant(s) in your answer?

Terms: C, 0.80t, 10

Coefficient: 0.80

Constant: 10

14. How many terms are in the expression: $\frac{9}{5}x^7 + 13x^5 - .07x^3 - 22x + 38$?

1 2 3 4 5

5

15. How many mL are in 1 hL?

1.00000

100,000 ml

16. Translate the following into an algebraic expression: 2 of a number more than the square of the quotient of 12 and that number.

$\left(\frac{12}{x}\right)^2 + 2$