

Monday, September 17th, 2018

On Monday, 380 students went on a trip to the zoo. All 8 buses were filled and 4 students had to travel in cars. How many students were in each bus ?

Oceanside Bike Rental Shop charges 11 dollars plus 6 dollars an hour for renting a bike. Joan paid 59 dollars to rent a bike. How many hours did she pay to have the bike checked out ?

Sep 16-11:56 AM

Foundations of Algebra Unit 2 - Relationships Among Quantities Review

Name: _____ Date: _____

Slope Intercept Form - Graphing a Line REVIEW

In 8th grade, you learned about slope and slope intercept form in order to graph lines. Today, we will be doing a mini review.

Slope Intercept Form is: $y = mx + b$

- x is your **independent** variable.
- y is your **dependent** variable, it changes depending on x .
- m represents your slope. This is how **steep** the line is. $m = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x}$. This is otherwise known as: **rate of change**.
- b is the **y-intercept** (where the line crosses the y axis). The y -intercept is written as: $(0, y)$.

Practice: Graph the following.

1) $y = 2x - 3$ ← **Slope-intercept form**
 $y = 2x + 3$
 $m = 2$, $b = -3$
 2nd) $m = \text{rise} = \frac{\text{chg } y}{\text{chg } x}$

2) $y = -\frac{1}{2}x + 2$

x	$y = -\frac{1}{2}x + 2$	y
-2	$y = -\frac{1}{2}(-2) + 2$	3
0	$y = -\frac{1}{2}(0) + 2$	2
2	$y = -\frac{1}{2}(2) + 2$	1

Table of values

ordered pairs: $(-2, 3)$, $(0, 2)$, $(2, 1)$

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Foundations of Algebra Unit 2 - Relationships Among Quantities Homework

Name: _____ Date: _____

Day 8 - Identifying Constraints and Interpreting Solutions

Constraints in Decision Making - Larry's Labor Day Bash

Larry is planning a huge Labor Day party that he does every year for his friends and family. He has \$100 set aside to spend on food for the party. He is trying to decide how many pounds of chicken to buy and how many steaks to buy. The chicken sells for \$2 a pound, while the steaks sell for \$5 per steak.

- Write an equation using 2 variables to represent Larry's purchasing decision. Define your variables.
 $c = \text{pounds of chicken}$, $s = \text{number of steaks}$
 $2c + 5s = 100$
- Use your equation to figure out how many steaks he can buy if he gets 20 pounds of chicken.
 $2(20) + 5s = 100$ $40 + 5s = 100$ $5s = 60$ $s = 12$
- How many pounds of chicken can he get if he buys 10 steaks?
 $2c + 5(10) = 100$ $2c + 50 = 100$ $2c = 50$ $c = 25$
- Solve your equation for steaks, s , in terms of the pounds of chicken, c .
 $5s = 100 - 2c$
- Graph the equation you just came up with in problem #4.

c	s
0	20
10	16
20	12
30	8
40	4
50	0

- Find the minimum and maximum pounds of chicken he can buy. Write your answer as an inequality in terms of c , the pounds of chicken.
 $0 \leq c \leq 50$
- Find the minimum and maximum number of steaks he can buy. Write your answer as an inequality in terms of s , the number of steaks.
 $0 \leq s \leq 20$

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Foundations of Algebra Unit 2 - Relationships Among Quantities Homework

Name: _____ Date: _____

Constraints in Decision Making - Beth's Bags

Beth is at a store having a sale on purses. The big purses are going for \$20 each, and the small purses are going for \$10 each. She has \$80 to spend.

- Write an equation using 2 variables to represent Beth's purchasing decision. Define your variables.
 $b = \text{number of big purses}$, $s = \text{number of small purses}$
 $20b + 10s = 80$
- Solve your equation for small purses, s , in terms of the number of big purses, b .
- Graph the equation you just came up with in problem #2.

b	s
0	8
4	0

- How many big purses can she get if she buys 3 small purses?
- How many small purses can she buy if she buys 2 big purses?
- Is it possible for her to buy 3 of each kind of purse?

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- Sub on 9/18
- Rewrite the equation in slope intercept form.
- $2x - 3y = -6$
 - $6x + y = -1$
 - $9x + y = -5$
 - $x + y = 3$

Sep 17-7:53 AM

Wednesday, September 19th, 2018

Convert the following to slope-intercept form and identify the slope and y-intercept.

$$\begin{array}{r} 2x + 4y = -24 \\ -2x \quad -2x \\ \hline 4y = -24 - 2x \\ 4y = -2x - 24 \\ y = \frac{-2x - 24}{4} \\ y = -\frac{1}{2}x - 6 \\ m = -\frac{1}{2} \\ b = -6 \end{array}$$

$$\begin{array}{r} -5x - 3y = -12 \\ +5x \quad +5x \\ \hline -8y = 5x - 12 \\ -8y = 5x - 12 \\ y = \frac{5x - 12}{-8} \\ y = -\frac{5}{8}x + \frac{12}{8} \\ y = -\frac{5}{8}x + 1.5 \\ m = -\frac{5}{8} \\ b = 1.5 \end{array}$$

Hint: slope intercept form looks like $y = mx + b$

Sep 16-11:56 AM

Foundations of Algebra Unit 2 - Relationships Among Quantities Notes
 Name: _____ Date: _____

Day 9 - Metric Conversions

Metric Conversion: Stair-Step Method

The Metric System of measurement is based on multiples of **ten**.

The 3 base units are: **grams (weight), meters (distance), liters (volume)**

The 4 prefixes are: **Kilo, hecto, deca, deci, centi, milli**

before

To convert to a smaller unit, move decimal point to the right or multiply.

To convert to a larger unit, move decimal point to the left or divide.

To use the Stair-Step method, you will move the decimal point in the direction you have to move on the stairs.

Write the equivalent measurements:

- 5 dm = **0.5** m
- 2 mL = **0.002, 0.002**
- 38.2 dkg = **38,200, 38,200, 2007 mg = 2.007**
- .03 km = **3000, 30,000, 480**
- 6035 mg = **6.035, 6.035**
- 75 mL = **0.0075, 0.0075**
- 6.5 m = **650**
- 480 cm = **480**
- 2500 dL = **2500**

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Foundations of Algebra Unit 2 - Relationships Among Quantities Notes
 Name: _____ Date: _____

Compare the measurements using <, >, or =. SHOW YOUR WORK!

- 63 cm < 600 cm (600)
- 43 mg < 5000 mg (5000)
- 5 g > 500 mg (500)
- 3.6 m > 36 cm (36)
- 1500 mL = 1.5 L (1.500)
- 7 g > 698 mg (698)
- 536 cm = 53.6 dm (53.6)
- 1.1 hL < 11 L (11.0)

Answer the following questions using metric conversions.

- One cereal bar has a mass of 37 g. What is the mass of 6 cereal bars? Is that more or less than 1 kg? Explain your answer.
 $37g \times 6 = 222g < 1kg$ (1000g)
- Wanda needs to move 110 kg of rocks. She can carry 10 hg each trip. How many trips must she make?
 $110kg = 1100hg$
- Dr. O is playing in her garden again. She needs 1 kg of potting soil for her plants. She has 750 g. How much more does she need?
- Will a tablecloth that is 155 cm long cover a table that is 1.6 m long? Explain.
- A dollar bill is 15.6 cm long. If 200 dollar bills were laid end to end, how many meters long would the line be?
- The ceiling in Jan's living room is 2.5 m high. She has a hanging lamp that hangs down 41 cm. Her husband is exactly 2 m tall. Will he hit his head on the hanging lamp? Why or why not?

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Foundations of Algebra Unit 2 - Relationships Among Quantities Homework
 Name: _____ Date: _____

Day 9 - Converting Metric Units Cross Number

Across

- 1450 cm in m
- 37 mm in cm
- 2.8 cm in mm
- 0.048 in ml
- 0.707 kg in g
- 564 cm in m
- 7.35 m in cm
- 31.42 l in cl
- 9090 g in kg
- 0.026 km in m
- 4100 ml in l
- 3.4 cm in mm
- 0.523 kg in g
- 7070 mm in m

Down

- 0.12 l in ml
- 0.048 m in mm
- 5.2 cm in mm
- 0.39 cm in m
- 0.074 kg in g
- 8.05 kg in g
- 3460 m in km
- 7400 cl in l
- 7.7 l in ml
- 510 mm in cm
- 6.2 cm in mm
- 3.425 kg in g
- 9870 ml in l
- 0.932 kg in g
- 4.3 m in cm
- 5.6 cm in mm

Give decimal points a full square.

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Foundations of Algebra Unit 2 - Relationships Among Quantities ID: 1
 Name: _____ Date: _____ Period: _____

Sub Work

Solve each equation.

- $-2 = -1 + \frac{m}{8}$
- $8(x + 4) = -24$
- $1 = -6 + \frac{x}{2}$
- $-3 = -2 - 10$
 $-38 = 2x - 20$
 $-20 = 2x - 20 + 20$
 $-18 = 2x$
 $\frac{-18}{2} = \frac{2x}{2}$
 $-9 = x$
- $-3 = \frac{p}{6}$
 $+4 \quad +4$
 $6 \cdot 1 = \frac{p}{6}$
 $6 \cdot 1 = p$
 $6 = p$
- $1 = \frac{m-2}{12}$
- $0 = 1 + \frac{b}{8}$
- $2(x-7) = 2$
 $-10 = 7 + b$
 $-7 \quad -7$
 $-17 = b$
- $4(2n-7) = 72$
 $-20 + 4n = 72$
 $-20 = 4n - 20$
 $4n = 52$
 $\frac{4n}{4} = \frac{52}{4}$
 $n = 13$

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Solve each inequality and graph its solution.

- $-6(2x+3) > 0$
 $-12x - 18 > 0$
 $-12x > 18$
 $\frac{-12x}{-12} > \frac{18}{-12}$
 $x < -\frac{3}{2}$
- $\frac{r-1}{5} \geq 4$
- $-9 + \frac{m}{2} \leq -18$
- $\frac{c}{2} \geq 9 < 14$
- $0 > -10(-5+x)$
- $\frac{t-2}{2} < 6$
- $-68 + 2 \leq -16$
- $4 \frac{h}{8} \geq 3$
- $18 < 6 + \frac{p}{2}$
 $10(1) = 10$
 $10 \geq -7 + p$
 $+7 \quad +7$
 $17 \geq p$
 $p \leq 17$

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Thursday, September 19th, 2018

Convert.

- 3.9 cm = _____ mm
- 10 dm = _____ m
- 8.6 km = _____ hm
- 30 dm = _____ m
- 90 dm = _____ m
- 4 hm = _____ km

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Foundations of Algebra Unit 2 - Relationships Among Quantities Classwork
 Name: _____ Date: _____

Day 10 - Metric Conversions and Applications Practice

Answer the following questions using metric conversions.

- Sally is on the All-City track team and has to run the 100-meter dash. How many deka-meters will she run?
- Each year, the New York City Marathon which is 42 km, is run by thousands of people. If you and two friends go run the marathon, how many meters will all three of you run?
- A recipe for shortbread cookies calls for 5 grams of butter to make 12 cookies. How many deca-grams will there be in 60 cookies?

Write the equivalent measurements:

4. 65 dm = _____ km	7. 580 dL = _____ hL
5. 2500 mL = _____ L	8. 150 m = _____ cm
6. .58 dg = _____ cg	9. 920 cg = _____ g

Compare the measurements using <, >, or =. ****SHOW YOUR WORK****

10. 880 cm _____ 9 m	13. 75 g _____ 7.5 dkg
11. 5020 mg _____ 5 g	14. 445 cm _____ 0.0445 dkm
12. 1500 hL _____ 1.5 L	15. 2.1 kL _____ 221 dkl

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Foundations of Algebra Unit 2 - Relationships Among Quantities Classwork
 Name: _____ Date: _____

Answer the following questions using metric conversions.

- Susan's car has a 40 liter gas tank. If it takes four tanks of gas to go to Florida and back, will she have enough gas if she can only afford to buy 2 hecto-liters?
- Five year old Michelle weighs 75 deka-grams. What is her weight in centi-grams?
- The doctor told Cheryl to drink 4 liters of water a day. After 7 days, how many milliliters of water did Cheryl drink? If she has to drink a minimum of 80,000 milliliters before she can participate in sports, how many days should it take?
- Nick is on the Hillgrove cross-country team and has to run a 5 km race. How many deka-meters will he run?
- One energy bar has a mass of 85 g. What is the mass of 12 energy bars? Is that more or less than 1 kg?

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Foundations of Algebra Unit 2 - Relationships Among Quantities Practice
 Name: _____ Date: _____

Day 10 - Applications of Metric Conversions

Answer the following questions using metric conversions.

- There is a jar on the cabinet by the refrigerator. Savannah pours 208 milliliters of water in the jar six times to fill it, how many liters of water does it take to fill the jar?
- Eric's father asked an engineer to survey the field house behind their house. He wanted to plant some apple and pear trees there. According to the survey, the field is 38 meters long and 17 meters wide. What is the perimeter of the field in kilometers?
- We have a new guest in our house. He is 0.54 metres long and weighs 4.1 kg. He is our new puppy. The veterinarian said he should gain about 136 grams per week. At that rate, how much, in kilograms, will he weigh in 3 months.
- There are 4 aluminum cans sitting on the shelf. Each can contains 321 milliliters of soup. Brittany poured all the soup into one bowl. How many liters of soup did she have?
- Brandon looked at the 10 liter jug of Grosse Green soda soapy. He had bet his friend that he could drink all of it and new he was sure his stomach would explode if he drank one more milliliter. He had already drunk 3700 milliliters. How much was left in the jug, in liters?

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Name: _____

Day 10 - More Metric Conversions Practice

S.1	6700	320	58	3260	58	7.5	75	58	3.2	6700	326

Work out the missing number for each question and then write the correct letter above each number in the above box. The first question has been completed.

Write:

A 3200 ml in l = 3.2	M 7500 cl in l
B 897 ml in cl	N 6.7 l in ml
E 0.058 l in ml	O 8970 ml in l
G 32.6l in cl	R 7500 ml in l
H 67 ml in cl	S 3260 ml in cl
I 5100 ml in l	T 32 cl in ml
L 0.73 l in ml	U 73 ml in cl
	W 5800 ml in l

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Friday, September 20th, 2018

There is a jar on the cabinet by the refrigerator. Savannah pours 315 milliliters of water in the jar six times to fill it, how many deciliters of water does it take to fill the jar?


Sep 16-11:56 AM

Foundations of Algebra Unit 2 - Relationships Among Quantities
 Name: _____ Date: _____

Unit 2B Quiz #1 Review

Constraints in Decision Making - Larry's Labor Day Bash
 Larry is planning a huge Labor Day party that he does every year for his friends and family. He has \$100 set aside to spend on food for the party. He is trying to decide how many pounds of chicken to buy and how many steaks to buy. The chicken sells for \$2 a pound, while the steaks sell for \$10 per steak.

- Write an equation using 2 variables to represent Larry's purchasing decision. Define your variables. c = pounds of chicken s = number of steaks
- Use your equation to figure out how many steaks he can buy if he gets 25 pounds of chicken.
- How many pounds of chicken can he get if he buys 8 steaks?
- Solve your equation for steaks, s , in terms of the pounds of chicken, c .
- Graph the equation you just came up with in problem #4.



- Find the minimum and maximum pounds of chicken he can buy. Write your answer as an inequality in terms of c , the pounds of chicken.
- Find the minimum and maximum number of steaks he can buy. Write your answer as an inequality in terms of s , the number of steaks.

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Foundations of Algebra Unit 2: Relationships Among Quantities

Convert the following to Slope Intercept Form and identify the Slope and Y-intercept.

$5x + 2y = 10$	$-4x + 6y = -24$	$10x - 3y = 18$
m = b =	m = b =	m = b =

Metric Conversions:

Convert 5dm to m	Convert 75 mL to kL
Convert 2mL to L	Convert 6.5m to cm
Convert 38.2 dkg to dg	Convert 2007 mg to g
Convert .05 km to cm	Convert 6035 mg to hg

18. Michelle weighs 71.7 deka-grams. What is her weight in centi-grams?

20. Sally is on the All-City track team and has to run the 400-meter dash. How many deka-meters will she run?

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