Escambia County Middle School

Summer Math Packet for Rising 8th Graders

Suggested Pacing: Complete one task per week.

REMINDERS:

- To earn credit, you must SHOW YOUR WORK! Do not just copy the answers! The packet will be due on August 19, 2016 and will be recorded as an extra credit grade during the first marking period.

- Join my Khan Academy class and increase your extra credit points. You will earn credit based on the amount of time you spend on the math topics.

How to join Mr. Lloyd's Khan Academy class:

1. Sign up at **khanacademy.org**
   (or log in if you already have an account)

2. Visit **khanacademy.org/coaches**
   (the "Coaches" tab in your profile)

3. In the "Add a coach" field, enter the class code.

   Class code: S9Z8NT

4. You're set. Now click **Home** to start learning!

[Task #1]

Objective: Proportional Relationships

Alex spent the summer helping out at his family business. He was hoping to earn enough money to buy a new $220 gaming system by the end of the summer. Halfway through the summer, after working for 4 weeks, he had earned $112. Alex wonders, "If I continue to work and earn money at this rate, will I have enough money to buy the gaming system by the end of the summer?"

To determine if he will earn enough money, he decided to make a table. He entered his total money earned at the end of Week 1 and his total at the end of Week 4.

Week	0	1	2	3	4	5	6	7	8
Total Earnings		$28			$112				

a) Work with a friend or family member to complete the table.

b) Will Alex have enough money to buy the gaming system by the end of the summer?

[Task #1] (ANSWER)

Objective: Proportional Relationships

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To determine if he will earn enough money, he decided to make a table. He entered his total money earned at the end of Week 1 and his total at the end of Week 4.

Week	0	1	2	3	4	5	6	7	8
Total Earnings	$0	$28	$56	$84	$112	$140	$168	$196	$224

a) Work with a friend or family member to complete the table.

b) Will Alex have enough money to buy the gaming system by the end of the summer? (Write your answer in a complete sentence)
Yes, Alex will have enough money to buy the $220 gaming system by the end of the summer because he will have earned 8·28, or 224 dollars, for the 8 weeks he worked.

[Task #2]

Objective: Solving Equations Using Algebra

The youth group is going on a trip to an amusement park in another part of the state. The trip costs each group member $150, which includes $85 for the hotel and two one-day combination entrance and meal plan passes.

a) Write an equation representing the cost of the trip. Let p be the cost of the park pass.

b) Solve the equation algebraically to find the cost of the park pass.

[Task #2] (ANSWER)

Objective: Solving Equations Using Algebra

The youth group is going on a trip to an amusement park in another part of the state. The trip costs each group member $150, which includes $85 for the hotel and two one-day combination entrance and meal plan passes.

a) Write an equation representing the cost of the trip. Let p be the cost of the park pass.

85 + 2p = 150

b) Solve the equation algebraically to find the cost of the park pass.

85 + 2p = 150

85 – 85 + 2p = 150 – 85

0 + 2p = 65

2p = 65

p = 32.5

The park pass costs $32.50

[Task #3]

Objective: This task presents a real-world application of problem solving with positive and negative rational numbers.

You can earn $4.25 an hour helping a younger neighbor with his homework. You can earn $2.50 an hour doing yard work on the weekend. During the month of May, you worked hard to earn money for your summer vacation. You used a table to keep track of the number of hours you worked each week. How much money did you save? Is it enough spending money for the summer? Will you have to work more? If so, how much? Round to the nearest hundredth.

	Homework Help (hours)	Yardwork (hours)
Week 1	3.5	2.25
Week 2	3	3.5
Week 3	2.75	7.75
Week 4	3.5	0

1. Calculate the amount of money you earned each week. Show your work and explain your reasoning.

2. Calculate the amount of money you made in the month of May. Show your work and explain your reasoning.

3. Your summer vacation is 8 weeks long. You want to have at least $15 to spend each week. Have you met your goal? Explain how you know.

[Task #3] ANSWER

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	Homework Help (hours)	Yardwork (hours)
Week 1	3.5	2.25
Week 2	3	3.5
Week 3	2.75	7.75
Week 4	3.5	0

1. Calculate the amount of money you earned each week. Show your work and explain your reasoning.

Week 1 = $20.51 (or $20.50), Week 2 = $21.50, Week 3 = $31.07 (or $31.06), Week 4 = $14.88

2. Calculate the amount of money you made in the month of May. Show your work and explain your reasoning.

$87.96

3. Your summer vacation is 8 weeks long. You want to have at least $15 to spend each week. Have you met your goal? Explain how you know.

No, because when I divide the amount earned by 8, the result is less than $15.

[Task #4]

Objective: Writing inequalities from verbal clues.

You are going shopping for school supplies. Between what you have saved and what you have been given, you have $300 to use to buy back-to-school items. You decide to plan ahead to figure out how to best spend your money. There are many items you would like to purchase, and you want to make sure that you can get everything you need as well as some of the things you want.

a) You know that you must buy a calculator. The calculator you need costs $27.95 including tax. You also need some binders. Each binder costs $12.55 including tax. If you buy only the calculator and binders, write an inequality that you could use to determine how many binders you could buy.

b) How many binders could you buy along with the calculator? What kind of number should your answer be—an integer, a fraction, or a decimal? Why? Do regular rounding rules apply here? Why or why not?

c) You decide you need 5 binders and you also need some book covers. Each book cover costs $4.98 including tax. If you buy the calculator, 5 binders, and some book covers, write an inequality that you could use to determine how many book covers you could buy.

[Task #4] ANSWER

Objective: Writing inequalities from verbal clues.

You are going shopping for school supplies. Between what you have saved and what you have been given, you have $300 to use to buy back-to-school items. You decide to plan ahead to figure out how to best spend your money. There are many items you would like to purchase, and you want to make sure that you can get everything you need as well as some of the things you want.

a) You know that you must buy a calculator. The calculator you need costs $27.95 including tax. You also need some binders. Each binder costs $12.55 including tax. If you buy only the calculator and binders, write an inequality that you could use to determine how many binders you could buy.

   $12.55x + 27.95 \leq 300$

b) How many binders could you buy along with the calculator? What kind of number should your answer be—an integer, a fraction, or a decimal? Why? Do regular rounding rules apply here? Why or why not?

   $12.55x \leq 272.05$
   $x \leq 21.68$

   You can buy at most 21 binders. The answer should be an integer. You cannot round up in this case; you must round down because you can only buy what you have enough money for.

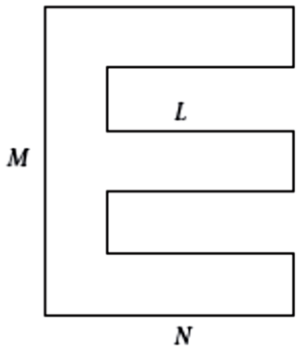
c) You decide you need 5 binders and you also need some book covers. Each book cover costs $4.98 including tax. If you buy the calculator, 5 binders, and some book covers, write an inequality that you could use to determine how many book covers you could buy.

   $4.98x + 27.95 + 5(12.55) \leq 300$

[Task #5]

Objective: Finding perimeter.

Use the figure below to answer the questions that follow.



a) If M = 5 meters, N = 4 meters, and L = 2.5 meters, what is the perimeter of the figure?

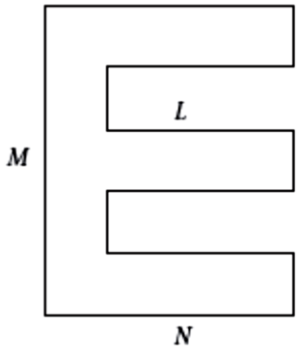
b) Using the variables only, write two or more expressions that could represent the perimeter of the figure. Show that your expressions are equivalent.

c) Is there another way to represent the perimeter of the figure?

[Task #5] ANSWER

Objective: Finding perimeter.

Use the figure below to answer the questions that follow.



a) If M = 5 meters, N = 4 meters, and L = 2.5 meters, what is the perimeter of the figure?

2(5) + 2(4) + 4(2.5) = 28 meters

b) Using the variables only, write two or more expressions that could represent the perimeter of the figure. Show that your expressions are equivalent.

P = 2M + 2N + 4L = 2(M + N) + 4L

c) Is there another way to represent the perimeter of the figure?

[Task #6]

Objective: Operations with Integers

Diagram and solve the following integer operations. Use chip boards such as the ones pictured below. Use black circles, or chips, to represent negative values. Use white circles, or chips, to represent positive values. Use a series of two or three chip boards for each sentence.

1. (–5) + (9) = ?

2. 12 + (–7) = ?

3. (–8) – (–5) = ?

Chip board 1

Chip board 2

Chip board 3

[Task #6] ANSWER

Objective: Operations with Integers

1. Chip board 1: 5 black chips; Chip board 2: 5 black chips and 9 white chips; Chip board 3: 4 white chips

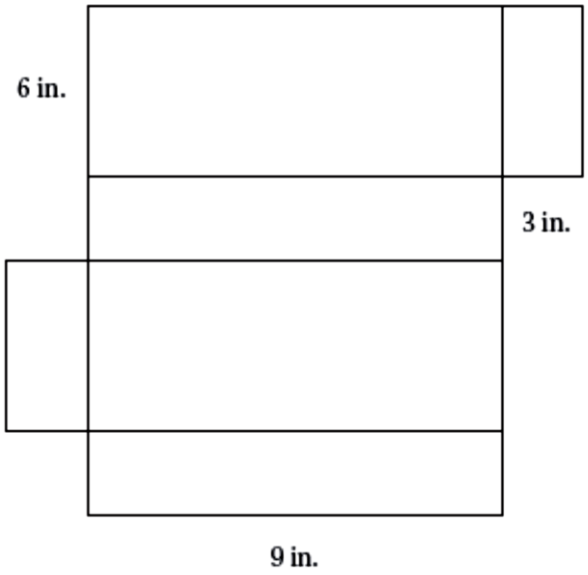
2. Chip board 1: 12 white chips; Chip board 2: 12 white chips and 7 black chips; Chip board 3: 5 white chips

3. Chip board 1: 8 black chips; Chip board 2: 5 black chips crossed out or removed; Chip board 3 (or 2): 3 black chips

[Task #7]

Objective: Volume and Surface Area

The drawing below is a flat pattern or a net. When folded, it creates a box in the shape of a rectangular prism. Draw a sketch of the box and determine its total surface area and volume.



[Task #7] ANSWER

Objective: Volume and Surface Area

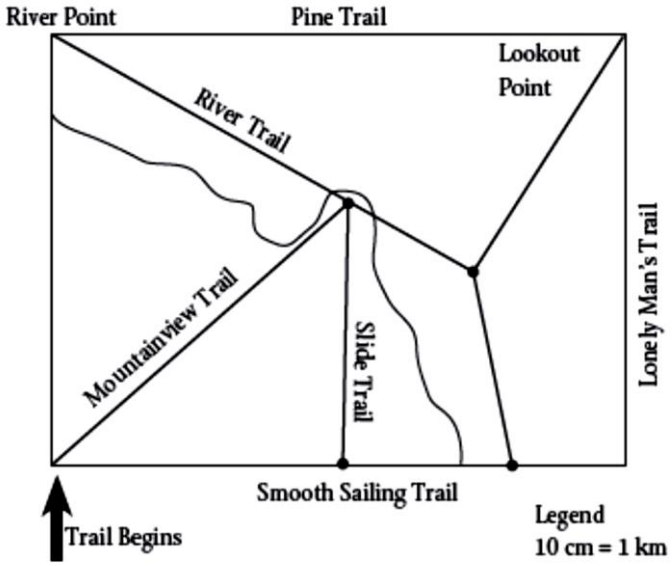
The drawing below is a flat pattern or a net. When folded, it creates a box in the shape of a rectangular prism. Draw a sketch of the box and determine its total surface area and volume.

surface area = 198 square in.; volume = 162 cubic in.

[Task #8]

Objective: Measuring

Use this map and a metric ruler to measure the distance from place to place. Help these hikers find their destination.



1. If the hikers walk down Mountainview Trail, turn left on River Trail, and stop at River Point, how many kilometers did they hike?

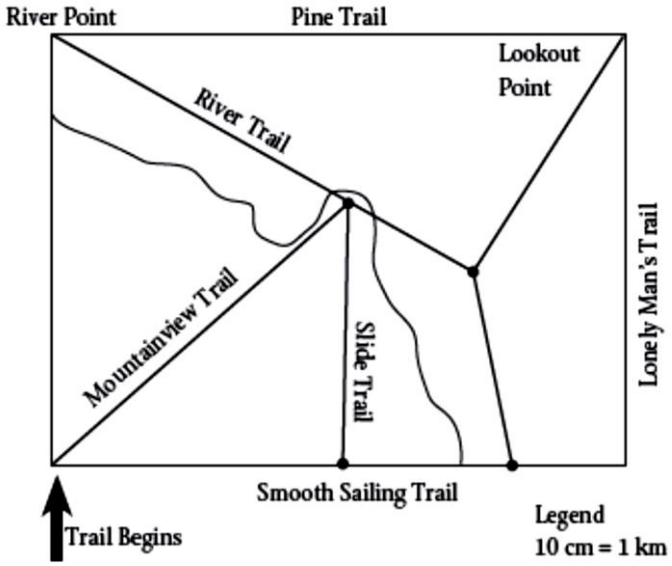
2. From River Point, they head along Pine Trail to Lookout Point. How far is it from River Point to Lookout Point?

3. If the hikers head down Lonely Man's Trail and turn right onto Smooth Sailing Trail to return to their starting point, how far will they have traveled from Lookout Point to their original starting point?

[Task #8] **ANSWER**

Objective: Measuring

Use this map and a metric ruler to measure the distance from place to place. Help these hikers find their destination.



1. If the hikers walk down Mountainview Trail, turn left on River Trail, and stop at River Point, how many kilometers did they hike?

   1.12 km

2. From River Point, they head along Pine Trail to Lookout Point. How far is it from River Point to Lookout Point?

   0.87 km

3. If the hikers head down Lonely Man's Trail and turn right onto Smooth Sailing Trail to return to their starting point, how far will they have traveled from Lookout Point to their original starting point?

   1.52 km