A2 7th grade Number system cont
Subject: Mathematics
State: Michigan

Student Name:_____

Teacher Name:_____

School Name:_____

❶ Malia found a "short cut" to find the decimal representation of the fraction $\frac{117}{250}$. Rather than use long division she noticed that $250 \times 4 = 1000$.

She then noticed that: $\frac{117}{250} = \frac{117 \times 4}{250 \times 4} = \frac{468}{1000} = 0.468$

(a) For which of the following fractions does Malia's strategy work to find the decimal representation?

$$\frac{1}{3}, \frac{3}{4}, -\frac{6}{25}, \frac{18}{7}, \frac{13}{8}, -\frac{113}{40}$$

For each one for which the strategy **does** work, use the strategy to find the decimal representation.

(b) For what denominators will Malia's strategy work? Explain your answer.

❷ (a) Use long division to find the repeating decimal that represents $\frac{29}{13}$.

(b) Take the number obtained by including only the first two digits after the decimal, and multiply that by 13.

(c) Take the number obtained by including only the first four digits after the decimal, and multiply that by 13.

(d) Take the number obtained by including only the first six digits after the decimal, and multiply that by 13.

(e) What do you notice about the product of 13 and the decimal approximations of $\frac{29}{13}$ as more and more digits are included after the decimal point?

(f) How does what you observed in part (e) help make sense of what it means for $\frac{29}{13}$ to be equal to the repeating decimal expression you found in part (a)?

❸ Calculate the decimal value of the fraction below using long division. Express your answers using bars over the shortest sequence of repeating digits.

a. $-\frac{4}{9}$

b. $-\frac{1}{11}$

c. $\frac{1}{7}$

d. $-\frac{5}{6}$

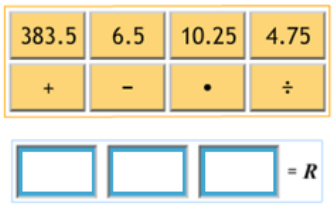
❹ Convert $\frac{3}{11}$ to a decimal equivalent using long division.

Show your work.

❺ The three seventh grade classes at Sunview Middle School collected the most boxtops for a school fundraiser, and they won a $600 prize to share among them. Mr. Aceves's class collected 3,760 box tops, Mrs. Baca's class collected 2,301, and Mr. Canyon's class collected 1,855. How should they divide the money so that each class gets the same fraction of the prize money as the fraction of the box tops that they collected? Explain your answer.

❻ Anne's family is driving to her uncle's house. The family travels 383.5 miles between 10:15 a.m. and 4:45 p.m.

What is an equation that Anne can use to determine their average rate of travel for the day, R, in miles per hour? Use two numbers and one operation from the box to fill in the blanks in the equation below.



❼ Anne's family is driving to her uncle's house. The family travels 383.5 miles between 10:15 a.m. and 4:45 p.m.

Calculate the family's average rate of travel for the day. Give your answer as a decimal rounded to the nearest tenth.

❽ Jane and Eric are helping their teacher buy supplies for a research project. Every student will get a bag with 2 pencils and 30 index cards.

The teacher gave Jane $17 to buy pencils from the school store. The pencils come in boxes of 12 and cost $1.69 per box.

Eric was given $19 to buy index cards at an office supply store. Index cards are sold in packs of 150 cards and cost $2.99 per pack.

Jane buys as many boxes of pencils as she can afford. Eric buys as many packages of index cards as he can afford. How many complete bags of supplies can they make?

(A) Fewer than 10

(B) Between 10 and 24

(C) Between 25 and 40

(D) More than 40

❾ Last week Rachel power walked $2\frac{2}{5}$ miles per day on each of the 7 days. During the same week, she also jogged $5\frac{3}{4}$ miles per day on 4 days. What was the total number of miles Rachel power walked and jogged last week?

10 Helena bought 4 packages of cat food at a store. The weight of the food in each package was 1.25 pounds. Helena opened all 4 packages of cat food and put $\frac{2}{3}$ of the total amount of food into a container. The expression below represents the weight of the cat food Helena put into the container.

$(4)(1.25)(\frac{2}{3})$

What is the total weight, in pounds, of the cat food that Helena put into the container?

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

(B) $3\frac{11}{12}$

(C) $5\frac{2}{3}$

(D) $5\frac{11}{12}$

11 **Use the expression below to answer the question.**

$$-\frac{3}{4} \times \frac{2}{5}$$

Which situation can be modeled by the expression?

(A) Zach owes $\frac{3}{4}$ of the original price of his car. Each month he pays $\frac{2}{5}$ of the original price. How many months will it take Zach to pay off his car?

(B) Zach owes $\frac{3}{4}$ of the original price of his car. Each month he pays $\frac{2}{5}$ of how much he stillowes on the car. What fraction of the original price does Zach owe after this
month's payment?

(C) Abdi owes Kim $\frac{3}{4}$ of a dollar. He needs to borrow more money from Kim. Abdi then
borrows $\frac{2}{5}$ of how much he owes. By what fraction of a dollar does the amount Abdi owesKim change?

(D) Abdi owes Kim $\frac{3}{4}$ of a dollar. He pays her $\frac{2}{5}$ of how much he owes. What fraction of a
dollar does Kim receive from Abdi?

12 Every month, Ms. Thomas pays her car loan through automatic payments (withdrawals) from her savings account. She pays the same amount on her car loan each month. At the end of the year, her savings account balance changed by from payments made on her car loan. At the end of the year, her savings account balance changed by −$2,931 from payments made on her car loan. a) What is the change in Ms. Thomas' savings account balance each month due to her car payment?

b) Describe the total change to Ms. Thomas' savings account balance after making six monthly payments on her car loan. Model your answer using a number sentence.

13 What is the product of $(-\frac{1}{4}) \times (-\frac{3}{7})$

(A) $-\frac{7}{12}$

(B) $-\frac{3}{28}$

(C) $\frac{3}{28}$

(D) $\frac{7}{12}$

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15 Mrs. McIntire, a seventh grade math teacher, is grading papers. Three students gave the following responses to the same math problem:

Student one: $\frac{1}{-2}$

Student two: $-(\frac{1}{2})$

Student three: $-\frac{1}{2}$

On Mrs. McIntire's answer key for the assignment, the correct answer is: -0.5. Which student answer(s) is/ are correct? Explain.

16 The numerical expression $\frac{5}{6} - \frac{2}{3}\left(6 - \frac{1}{2}\right) + \frac{3}{4}$ is equal to:

(A) $-\frac{25}{12}$

(B) $-\frac{17}{12}$

(C) $\frac{20}{12}$

(D) $\frac{43}{12}$

17 In one year, Melinda's parents spend $2,640.90 on cable and internet service. If they spend the same amount each month, what is the resulting monthly change in the family's income?

18 Use the fundraiser chart to help answer the questions that follow.

Grimes Middle School Flower Fundraiser

Customer	Plant Type	Number of Plants	Price per Plant	Total	Paid? Yes or No
Tamara Jones	tulip	2	$4.25	$8.50	No
Mrs. Wolff	daisy	1	$3.75	$3.75	Yes
Mr. Clark	geranium	5	$2.25	$11.25	Yes
Susie (Jeremy's sister)	violet	1	$2.50	$2.50	Yes
Nana and Pop (Jeremy's grandparents)	daisy	4	$3.75	$15.00	No

Jeremy is selling plants for the school's fundraiser, and listed above is a chart from his fundraiser order form. Use the information in the chart to answer the following questions. Show your work and represent the answer as a rational number; then, explain your answer in the context of the situation.

a. If Tamara Jones writes a check to pay for the plants, what is the resulting change in her checking account balance?

b. Mr. Clark wants to pay for his order with a $20 bill, but Jeremy does not have change. Jeremy tells Mr. Clark he will give him the change later. How will this affect the total amount of money Jeremy collects? Explain. What rational number represents the change that must be made to the money Jeremy collects?

c. Jeremy's sister, Susie, borrowed the money from their mom to pay for her order. Their mother has agreed to deduct an equal amount of money from Susie's allowance each week for the next five weeks to repay the loan. What is the weekly change in Susie's allowance?

d. Jeremy's grandparents want to change their order. They want to order three daisies and one geranium, instead of four daisies. How does this change affect the amount of their order? Explain how you arrived at your answer.

e. Jeremy approaches three people who do not want to buy any plants; however, they wish to donate some money for the fundraiser when Jeremy delivers the plants one week later. If the people promise to donate a total of $14.40, what will be the average cash donation?

f. Jeremy spends one week collecting orders. If 22 people purchase plants totaling $270, what is the average amount of Jeremy's sale?

19 Which expressions are equivalent to $-3 \cdot \frac{4}{-5}$?

Select **each** correct answer.

(A) $\frac{-3}{-5} \cdot 4$

(B) $-\frac{3}{5} \cdot 4$

(C) $\frac{-3 \cdot 4}{-3 \cdot (-5)}$

(D) $-3 \cdot 4 \cdot \frac{-1}{5}$

(E) $\frac{3}{5} \cdot 4$

(F) $\frac{3 \cdot 4}{5}$