Name _____ Period _____ Date _____

Study Guide – Fall Semester Final Exam

Ms. Harrison makes a set of cards for her math class. All the cards in a set have the same value.

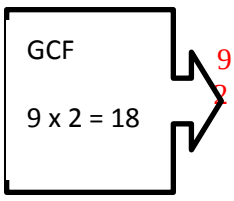
	Simple fraction	Decimal	Percent fraction	Percent
Set A	$\frac{1}{4}$	0.25	$\frac{25}{100}$	25%

1. Complete these sets of cards:

Set B	$\frac{1}{5}$	0.2	$\frac{20}{100}$	20%
Set C	$\frac{13}{20}$	0.65	$\frac{65}{100}$	65%
Set D	$\frac{5}{8}$	0.625	$\frac{625}{1000}$	62.5 %

2. Missy is making trail mix out of 54 bags of peanuts and 36 bags of dried cranberries. She wants each new portion of trail mix to be identical containing the same combination of peanuts and cranberries with nothing left over. What is the greatest number of portions of trail mix Missy can make and how much of each ingredient will be in each portion? Show your solution using pictures, numbers and words. More than one way to SOLVE:

Upside Down Division



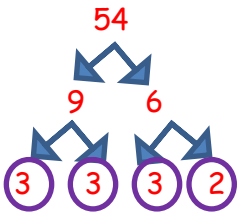
Peanut	Cranberries
54	36
6	4
3	2

18 portions

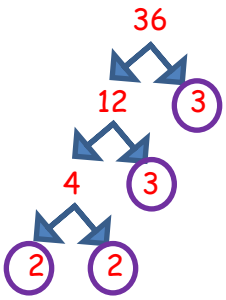
With 3 packs of peanuts and 4 packs of cranberries in each.

Factor Trees

Peanuts



Cranberries



Common Factors: 2 x 3 x 3 = 18

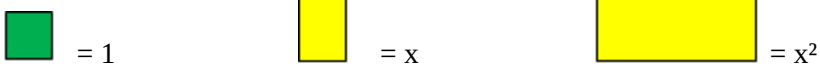
3. Suzy went to the store to buy gifts for three of her friends. Her gifts cost $4.25, $9.85 and $11.98. She gave the cashier $30. How much money did she spend and how much money will she get back?

Spent	Money Back
$ 4.25	$ 30.00
$ 9.85	- $ 26.08
+ $11.98	$ 3.92
$ 26.08	

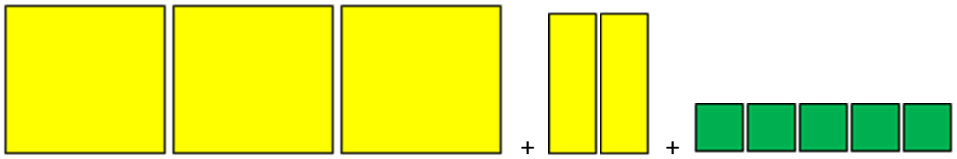
4. Four students equally share $\frac{3}{4}$ of a pizza. How much pizza does each student get? Show your solution using pictures, numbers and words.

$$\frac{3}{4} \div \frac{4}{1} = \frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$$

5. Consider the following algebra tiles:



What would $3x^2 + 2x + 5$ look like? Draw a model and explain your reasoning.



6. Mr. Green's math class is planning a trip to the IMAX theater. It will cost $12 for the school bus and the price of a ticket is $15 per student.

a) What will determine the amount of money the class will have to make?
You need to know how many busses are needed and how many students are attending.

b) How will the number of students affect the price?
Every student is another $15.
So it would be 15s = the total amount for the tickets.

c) How will they know how much money they need to make?
They need to know the TOTAL number of students going and how many buses are needed.

d) What value varies in this example?
The NUMBER of students going / tickets needed.
The NUMBER of busses needed.

e) Write an expression to show the value that varies.
15s + 12b

f) How much will it cost if 8 students attend?
15(8) + 12(1)
120 + 12 = 132

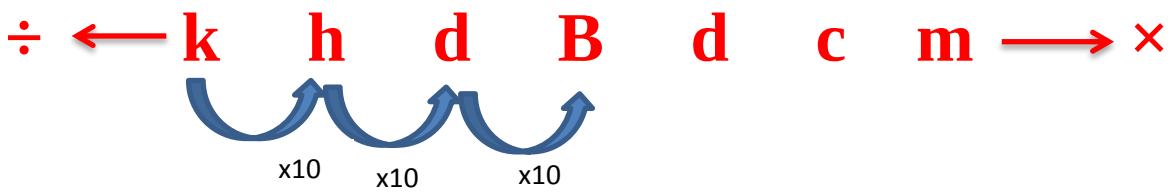
g) How much will it cost if 20 students attend?
15(20) + 12(1)
300 + 12 = 312

7. Instant meals sent out free samples to introduce its new product, Sesame Pasta. Each sample weighs 20 ounces. They send out 25 samples. How many pounds did they send through the mail? (16 ounces = 1 pound)

20 x 25 = 500 ounces

$$\frac{ounces}{pounds} = \frac{16}{1} = \frac{500}{x} = x = 83\frac{1}{3}\ pound$$

8. The track used by the first successful steam locomotive was 25.3 kilometers long. How many meters long was the track?



25.3 x 1000 = 25300 meters

9. Amy's friend, Christa, is making some pants for herself. She buys fabric, thread, buttons and a zipper. Use the table below to complete Christa's bill.

	WORK	**Total Amount ($)**
3 ¼ yards of fabric at $4 a yard	3.25 x 4	$13.00
2 spools of thread at 42¢ a spool	2 x 0.42	$ 0.84
4 buttons at 25¢ each	4 x 0.25	$ 1.00
Zipper 65¢	1 x 0.65	$ 0.65
Total bill before sales tax	13 + .84 + 1 + .65	$15.49
Sales tax at 7% (round to nearest cent)	0.07 x 15.49	$ 1.08
Total	$15.49 + $ 1.08	$ 16.57

10. Which is the better deal: 4 cans of soda for $1.37 or 6 cans of soda for $1.99?

UNIT RATE:

$$\frac{cans}{\$\$\$} = \frac{4}{1.37} = \frac{1}{m}$$ 1 can costs = 0.3425

$$\frac{cans}{\$\$\$} = \frac{6}{1.99} = \frac{1}{m}$$ 1 can costs = 0.331

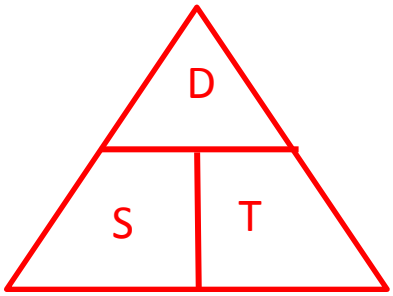
BETTER DEAL

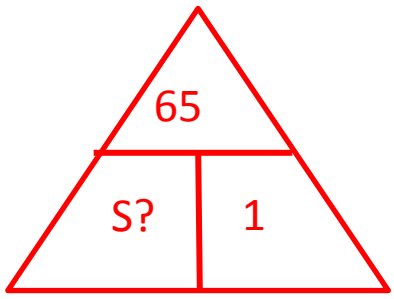
11. Which car is traveling faster: A car traveling 65 miles in 1 hour or traveling 250 miles in 4.5 hours?

$$\frac{d}{r} = t$$

$$\frac{65}{1} = s$$

$$s = 65\ mph$$





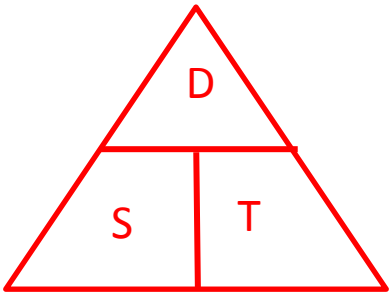
Faster Car

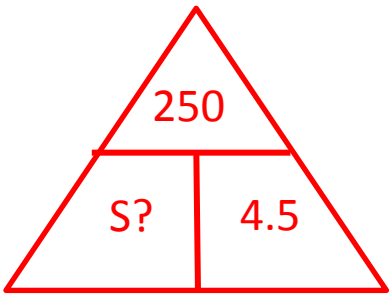
65 ÷ 1 = 65 mph

$$\frac{d}{r} = t$$

$$\frac{250}{4.5} = s$$

$$s = 55.5\ mph$$





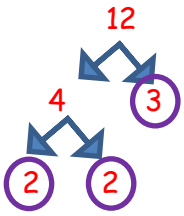
250 ÷ 4.5 = 55.5 mph

12. The Parent-Teacher Association at your school donated school supplies to help increase student creativity and student success in the classroom. Your teacher would like you to create kits that include one package of colored pencils, one glue stick, and one ruler. When you receive the supplies, you notice the colored pencils are packaged 15 boxes to a case, the rulers are packaged 12 to a box and glue sticks are packaged 6 to a box. What is the smallest number of each supply you will need in order to make the kids and not have supplies left over?

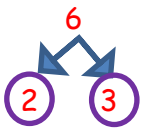
Factor Trees

Colored Pencils

Rulers



Glue Stick



15 = 3 x 5
12 = 2 x 2 x 3
6 = 2 x 3

2 x 2 x 3 x 5 = 60 LCM

The PTO will need 60 of each item.
4 packs of Colored Pencils
5 packs of Rulers
10 boxes of Glue Sticks

13. The formula for finding the surface area of a cube is $A = 6s^2$, where s is the length of one side of the cube. What is the surface area of a cube with the side length of 4 inches?

$A = 6s^2$

$6 \times s \times s$

$6 \times 4 \times 4$

$A = 96\ in^2$

$s = 4$

**** Use Substitution****

REPLACE the VARIABLE with its given VALUE!!!!!!!!

14. Sam is a landscaper. He found that he had 3 ¼ gallons of liquid fertilizer concentrate. It takes ½ gallon to make a tank of mixed fertilizer. How many tankfuls can he make?

$$3\frac{1}{4} \div \frac{1}{2} = \frac{13}{4} \div \frac{1}{2} = \frac{13}{4} \times \frac{2}{1} = \frac{26}{4} = 6\frac{1}{2}$$

6 FULL tanks

15. The cost in dollars of a school banquet is 75 + 10n, where n is the number of people attending. What is the cost for 54 people?

75 + 10n n =54

75 + 10(54)

75 + 540 = 615

**** Use Substitution****

REPLACE the VARIABLE with its given VALUE!!!!!!!!

**** ORDER OF OPERATIONS****

16. How wide is a rectangular strip of land with a length of 6 miles and an area of 84 square miles? (Use A = l • w)

$A = lw$ $l = 6$ $A = 84$ mi^2

$84 = 6w$

$84 \div 6 = 14$ inches

**** Use Substitution****

REPLACE the VARIABLE with its given VALUE!!!!!!!!

17. Use the distributive property to rewrite: 72 + 24

There are several:

2(36 + 12) 3(24 + 8) 4(18 + 6) 6(12 + 3)

8(9 + 3) 12(6 + 2) 24(3 + 1)

18. Samantha's family is taking a vacation to the mountains. Samantha's family car gets 20 miles per gallon of gasoline. Use the table to determine how many gallons of gasoline will be used to drive to Helen, GA.

Destination	Distance from Samantha's Home
Trenton	252 miles
Blue Ridge	335 miles
Helen	372 miles

$$\frac{miles}{gallon} = \frac{20}{1} = \frac{372}{x} \qquad 372 \div 20 = 18.6 \text{ gallons}$$

You CAN NOT use a Fraction and a Decimal. You must change and USE BOTH Fractions or BOTH Decimals

19. Evaluate the expression: $ab^2-c + d$ if a = 4, b = 5, c = 2.5 and d = ¾.

$ab^2-c + d$

$4 \times 5^2 - 2.5 + \frac{3}{4}$

$4 \times 25 - 2.5 + 0.75$

$100 - 2.5 + 0.75 = 98.25$

20. Paulo sells 20 adult tickets, 23 student tickets, and 5 discount tickets for the school play. What is the ratio of discount tickets to adult tickets?

5 to 20 (Simplify)

1 to 4 1:4 $\frac{1}{4}$

21. 250 sixth grade students and teachers are going to the Georgia Aquarium. If a bus seats 40 students, how many buses are needed for the trip?

250 ÷ 40 = 6.25 OR 6 ¼ you cannot use a "part" of a bus. You will need 7 busses.

22. It costs $8 per hour to roller skate. Ashleigh spent $32 skating. Write an equation you can use to find *h*, the number of hours Ashleigh skated and solve the equation.

$32 = 8h$