Name_____Date_____Hour_____

OPTIONAL / EXTRA MATH 7 SEMESTER 1 STUDY GUIDE

USE THIS STUDY GUIDE TO PRACTICE BEFORE YOUR MATH EXAM. TRY THE PROBLEMS YOU NEED EXTRA PRACTICE ON AND CHECK WITH THE ANSWER KEY SENT HOME!

CHAPTER 1: INTEGERS

Solve without using calculator.

a) $-6 + (-7)$

b) $3 \cdot -2$

c) $10 - (-5)$

d) $-72 \div (-12)$

e) $-8 + 7 + 9$

f) -4^2

g) $-13 - 4$

h) $2 - 10$

i) $-5(10)$

j) $11 + (-4)$

k) $(-7)^2$

l) $-9 + 18$

m) $[6 - 3(2 - 5)] + -9$

n) $12 \div 6 + (-3)^2 \cdot -2$

o) $-36 \div (18) + \ 0 \div -2$

p) $7 \cdot (-11) + 24 \div -8$

q) $\frac{10+(-6)\cdot -4}{-2}$

CHAPTER 2: RATIONAL NUMBERS

Solve without using calculator.

a) Write the mixed number as a decimal: $5\frac{1}{6}$

b) Write the decimal as a fraction in simplest form: 2.6

c) $2\frac{1}{8} + -3\frac{1}{2}$

d) $-5\frac{2}{3} - 2\frac{3}{5}$

e) $-4\frac{1}{4} \cdot \left(\frac{3}{5}\right)$

f) $-\frac{9}{2} \div -2\frac{3}{4}$

g) $-2.5 + (-13.072)$

h) $-3.6 - (-12.9)$

i) $-1.7(-3.45)$

j) $9.78 \div -0.3$

CHAPTER 3: EXPRESSIONS AND EQUATIONS

Simplify the algebraic expression without using a calculator.

a) $-5x + 12 - 2x - 20$

b) $w + 12 - 6(w + 2)$

Solve the following equations without using a calculator.

c) $-2.4 + w = 4.5$

d) $x + 3\frac{1}{3} = -4\frac{5}{6}$

e) $\frac{2}{5}d = -6$

f) $\frac{k}{-4} = -\frac{1}{2}$

g) $-6n = 72$

h) $7p + 10 = 24$

i) $-4g - 9g = 91$

j) $-3 - 6h = 21$

CHAPTER 4: INEQUALITIES

Solve and graph the solution of the following inequalities without using a calculator.

a) $k - 3 \leq -14$

b) $-2 < \frac{u}{4}$

c) $3(g - 4) \geq -12$

d) $-72 \geq -9j$

e) $5y + 7 < 22$

f) $7 > m + 18$

Write the word sentence as an inequality. You do not need to solve!

g) The product of a number h and 12 is at least -48.

h) You sign up for a new phone plan. There is a monthly fee of $20 and a charge of $0.15 per text message. Your budget allows a maximum monthly total of $40. Write an inequality that represents the number of text messages you can spend.

i) You earn $8.50 per hour at your summer job. Write an inequality that represents the number of hours you need to work in order to earn more than $500.

CHAPTER 5: RATIOS AND PROPORTIONS

Solve the following problems. You may use a calculator for this chapter! ☺

a) What is the unit price?

Boxes	3	6	9
Cost	$3.60	$7.20	$10.80

b) Jenna runs 8 laps in 20 minutes. Find Jenna's average speed.

c) You can buy a 54 ounce bag of Skittles for $6.98 or a 3.5 ounce box for $2.40. Which option is the better buy?

d) You get $27 to spend at the mall for doing 6 chores. Your friend gets $36 for doing 8 chores. Are your pay rates equivalent (proportional)?

e) Find the unit rate with the specified units: **laps per minute**

Minutes	0	2	4	6
Laps	0	1	2	3

f) Determine if the rate forms a proportion: 45 marbles in 9 bags; 135 marbles in 27 bags

g) Determine if the rate forms a proportion: 9 feet in 12 seconds; 16 feet in 45 seconds

h) Solve the following proportion: $\frac{3}{7} = \frac{x}{28}$

i) Solve the following proportion: $\frac{9}{a} = \frac{14}{42}$

j) The following graph shows a proportional relationship because:

1. _____

2. _____

k) Use the "Cost of Gelato" graph to find the unit rate.