

## COMPACTED MATHEMATICS: CHAPTER 4

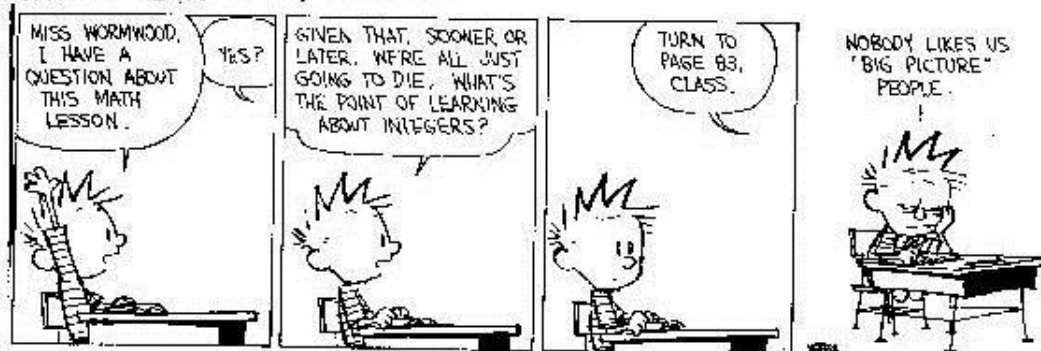
# INTEGERS IN SPORTS

### TOPICS COVERED:

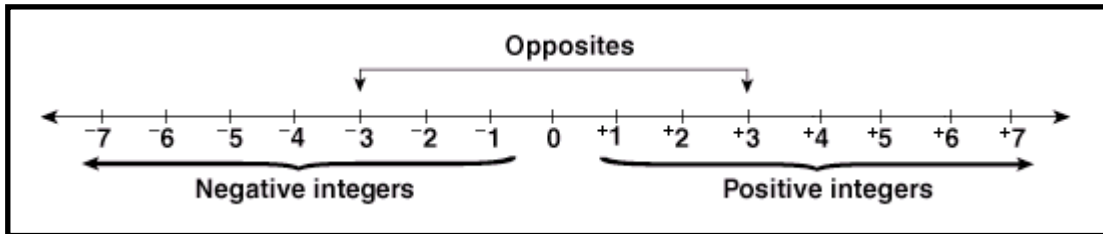
- Introduction to integers
- Opposite of a number and absolute value
- Adding integers
- Subtracting integers
- Multiplying and dividing integers
- Integer Labs
- Survival Guide to Integers Project









### CALVIN AND HOBBS By Bill Watterson



The number line can be used to represent the set of integers. Look carefully at the number line below and the definitions that follow.



### Definitions

-  **The number line goes on forever in both directions.** This is indicated by the arrows.
-  Whole numbers greater than zero are called **positive integers**. These numbers are to the right of zero on the number line.
-  Whole numbers less than zero are called **negative integers**. These numbers are to the left of zero on the number line.
-  The integer **zero is neutral**. It is neither positive nor negative.
-  The **sign** of an integer is either positive (+) or negative (-), except zero, which has no sign.
-  Two integers are **opposites** if they are each the same distance away from zero, but on opposite sides of the number line. One will have a positive sign, the other a negative sign. In the number line above, +3 and -3 are labeled as opposites.

**Definitions:**

**Integers** – the whole numbers and their opposites (positive counting numbers, negative counting numbers, and zero)

**Opposite of a number** – a number and its opposite are the same distance from zero on the number line

Example:  $-7$  and  $7$  are opposites

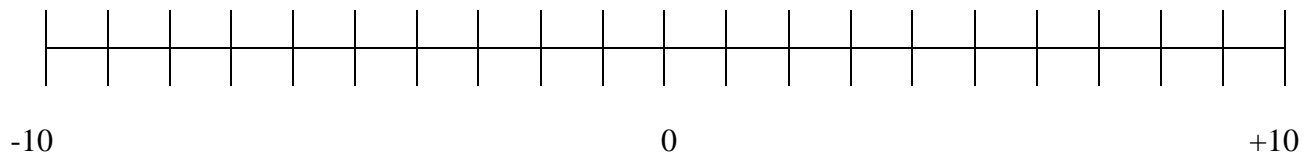
**Absolute value** – the number of units a number is from zero on the number line without regard to the direction

Example: the absolute value of  $-6$  is  $6$

The sign for absolute value is two parallel lines:  $|-6| = 6$

1-10. Place the correct letter corresponding to each integer on the number line below.

Place the corresponding letter above the correct place in the number line below:



A. $-5$	B. $+2$	C. $-7$	D. $4$	E. $-9$
F. $-1$	G. $+6$	H. $-3$	I. $0$	J. $-6$

**Write an integer to represent each situation.**

11.	lost \$72		12.	gained 8 yards		13.	fell 16 degrees	
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**Name the opposite of each integer.**

14.	26		15.	$-83$		16.	$+100$	
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**Compare the following integers. Write  $<$ ,  $>$ , or  $=$ .**

17.	$-5 \underline{\quad} 8$	18.	$12 \underline{\quad} -13$	19.	$-10 \underline{\quad} -21$	20.	$-7 \underline{\quad} -11$
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**Find the absolute value of the following numbers.**

21.	$ +11 $		22.	$ -6 $		23.	$ -55 $		24.	$ 0 $	
25.	$ 28 $		26.	$ -203 $		27.	$ +75 $		28.	$ -3 $	

**1. List the following temperatures from greatest to least.**

A	The temperature was 25 degrees Fahrenheit below zero.	
B	The pool temperature was 78 degrees Fahrenheit.	
C	Water freezes at 32 degrees Fahrenheit.	
D	The low temperature in December is -3 degrees Fahrenheit.	
E	The temperature in the refrigerator was 34 degrees Fahrenheit.	

**Think of the days of the week as integers. Let today be 0, and let days in the past be negative and days in the future be positive.**

2.	If today is Tuesday, what integer stands for last Sunday?	
3.	If today is Wednesday, what integer stands for next Saturday?	
4.	If today is Friday, what integer stands for last Saturday?	
5.	If today is Monday, what integer stands for next Monday?	

**Circle the number that is greater.**

6.	-4 or 13	7.	33 or -41	8.	0 or -4	9.	0 or 7
10.	-2 or -4	11.	9 or -7	12.	-5 or 5	13.	-1 or -11

**Write true or false.**

14.	$-3 > -7$		15.	$9 > -1$		16.	$-6 > -2$	
17.	$ -5  < -5$		18.	$ -8  =  8 $		19.	$-5 < -6$	

**Write an integer to represent each situation.**

20.	moving backwards 4 spaces on a game board	
21.	going up 3 flights in an elevator	
22.	a 5-point penalty in a game	
23.	a \$1 increase in your allowance	

**Order from least to greatest.**

24.	{6, -3, 1, -1, -5, 7, 0, 9}	
25.	{2, -1, 3, 4, -6, 13, -8, 2}	

For a long time, negative solutions to problems were considered "false" because they couldn't be found in the real world (in the sense that one cannot have a negative number of, for example, seeds).

The abstract concept was recognized as early as 100BC – 50BC. The Chinese discussed methods for finding the areas of figures; red rods were used to denote positive, black for negative. They were able to solve equations involving negative numbers. At around the same time in ancient India, sometime between 200BC and 200AD, they carried out calculations with negative numbers, using a "+" as a negative sign. These are the earliest known uses of negative numbers.

In Egypt, Diophantus in the 3rd century AD referred to the equation equivalent to  $4x + 20 = 0$  (the solution would be negative) in *Arithmetica*, saying that the equation was absurd, indicating that no concept of negative numbers existed in the ancient Mediterranean.

During the 7th century, negative numbers were in use in India to represent debts. The Indian mathematician Brahmagupta discusses the use of negative numbers. He also finds negative solutions and gives rules regarding operations involving negative numbers and zero. He called positive numbers "fortunes", zero a "cipher", and negative numbers a "debt".

From the 8th century, the Islamic world learnt about negative numbers from Arabic translations of Brahmagupta's works, and by about 1000 AD, Arab mathematicians had realized the use of negative numbers for debt.

Knowledge of negative numbers eventually reached Europe through Latin translations of Arabic and Indian works.

European mathematicians however, for the most part, resisted the concept of negative numbers until the 17th century, although Fibonacci allowed negative solutions in financial problems where they could be interpreted as debits and later as losses. At the same time, the Chinese were indicating negative numbers by drawing a diagonal stroke through the right-most non-zero digit. The first use of negative numbers in a European work was by Chuquet during the 15th century. He used them as exponents, but referred to them as "absurd numbers".

The English mathematician Francis Maseres wrote in 1759 that negative numbers "darken the very whole doctrines of the equations and make dark of the things which are in their nature excessively obvious and simple". He came to the conclusion that negative numbers did not exist.

Negative numbers were not well-understood until modern times. As recently as the 18th century, the Swiss mathematician Leonhard Euler believed that negative numbers were greater than infinity, and it was common practice to ignore any negative results returned by equations on the assumption that they were meaningless.

**Add or subtract.**

1.	$-2 + -8$		2.	$8 + -4$		3.	$-6 + 3$	
4.	$6 + -4$		5.	$-1 + 7$		6.	$-8 + 3$	
7.	$-2 + -6$		8.	$6 + -9$		9.	$-5 + -7$	
10.	$-4 + -7$		11.	$4 + -7$		12.	$-4 + 7$	
13.	$2 + -1 + -3$		14.	$0 + -5$		15.	$3 + 2 + -1$	
16.	$-5 + 5$		17.	$-6 + 1$		18.	$6 + -1$	

Some of the sixth grade teachers decide to try out for the Dallas Cowboys. They each are allowed one rushing attempt against the Cowboys defense. The table below summarizes the results of their attempts:

Johnsen	-8	Atkins	-19	Hoag	+18
Underwood	+24	Loewen	+2	Buckmaster	-26
Snow	-13	Mangham	+37	Landry	+6

Use the table above to answer the following addition problems.

19.	Mangham + Buckmaster		20.	Underwood + Johnsen	
21.	Snow + Atkins		22.	Hoag + Landry	
23.	Atkins + Mangham		24.	Snow + Landry	
25.	Loewen + Underwood		26.	Johnsen + Buckmaster	
27.	$ \text{Snow} + \text{Hoag} $		28.	Landry + Johnsen	
29.	Underwood + Mangham		30.	Atkins + Buckmaster	
31.	Hoag + Atkins + Snow		32.	Hoag + Landry + Loewen	
33.	Buckmaster + Atkins		34.	Johnsen + Hoag	

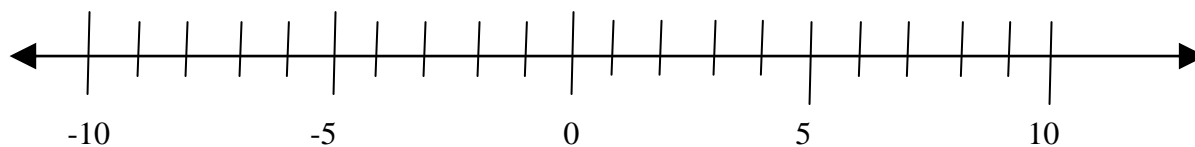
35.	Place the teachers in order from the worst carry (smallest) to the best carry (largest).	
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**Compare. Write  $<$ ,  $>$ , or  $=$ .**

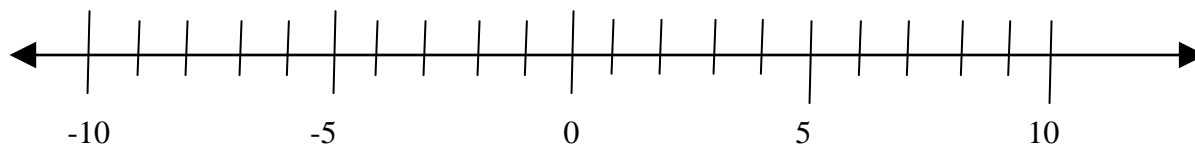
36.	$-5 + -6$ _____ $6 + -5$	37.	$-8 + 10$ _____ $-3 + 6$
38.	$-4 + -9$ _____ $-8 + -5$	39.	$20 + -12$ _____ $-12 + -4$

Below are several rushing attempts in a football game. Plot the attempts on the number lines to determine the total amount of yardage.

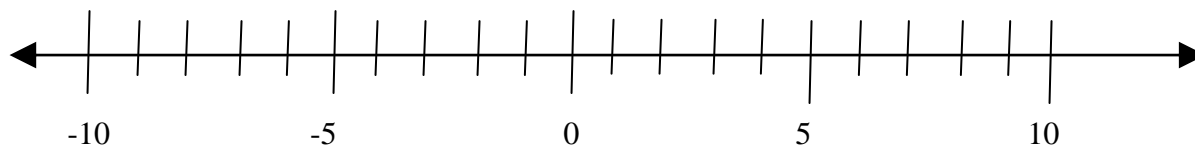
1. a gain of 3 yards and then a gain of 4 yards ( $3 + 4$ )



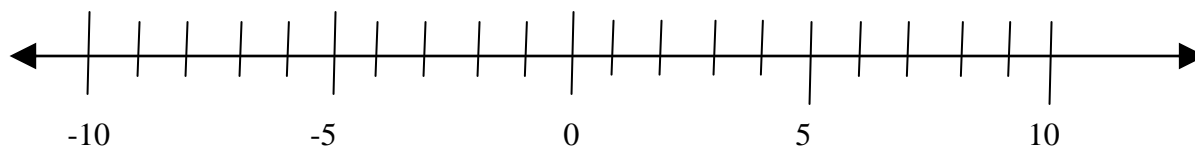
2. a loss of 5 yards and then a gain of 7 yards ( $-5 + 7$ )



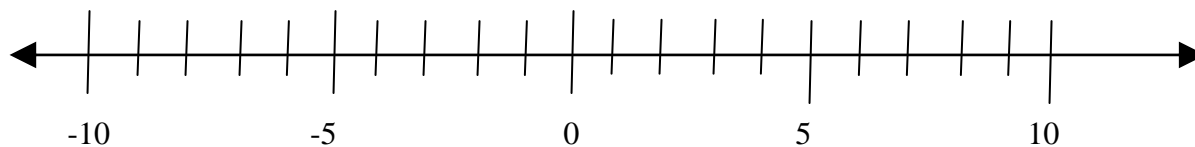
3. a loss of six yards and then another loss of 2 yards ( $-6 + -2$ )



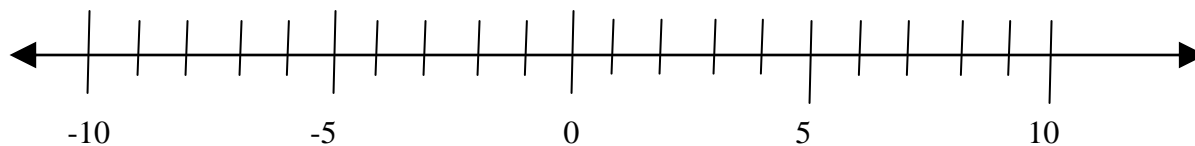
4. a gain of 8 yards and then a loss of 9 yards ( $8 + -9$ )



5. a loss of 3 yards and then a loss of 1 yard ( $-3 + -1$ )



6. a gain of 7 yards and then a loss of 7 yards ( $7 + -7$ )



An integer and its opposite are the same distance from 0 on a number line. The integers 5 and -5 are opposites. The sum of an integer and its opposite is 0. To subtract an integer add its opposite.

$$t = 6 - 9$$

$$m = -10 - -12$$

**Example 1:**  $t = 6 + -9$

**Example 2:**  $m = -10 + 12$

$$t = -3$$

$$m = 2$$

**Add or subtract.**

1.	$-2 - -8$		2.	$8 - (-4)$		3.	$-6 - 3$	
4.	$6 - -4$		5.	$-1 - 7$		6.	$3 - 8$	
7.	$-2 - 6$		8.	$6 - -9$		9.	$-5 - (-7)$	
10.	$-4 - (-7)$		11.	$4 - -7$		12.	$-4 - 7$	
13.	$2 - (-1) - (-3)$		14.	$-8 - 8$		15.	$2 - 3 - -1$	
16.	$-5 - (-5)$		17.	$-6 - 1$		18.	$6 - -1$	

In hockey, each player is given a plus/minus rating. This rating is based on how many goals are scored by their team while the player is on the ice minus how many goals are scored by the opposing team while the player is on the ice. A high number is good and a low number is bad. Here are the best and worst plus/minus ratings for 2009-2010:

1	Jeff Schultz – WSH	+50	874	Ryan Potulny – EDM	-21
2	Alex Ovechkin – WSH	+45	875	Kyle Okposo – NYI	-22
3	Mike Green – WSH	+39	876	Steve Staios – EDM	-27
4	Nicklas Backstrom – WSH	+37	877	Shawn Horcoff – EDM	-29
5	Daniel Sedin – VAN	+36	878	Rod Brind'Amour – CAR	-29
6	Alexander Semin - WSH	+36	879	Patrick O'Sullivan – EDM	-35

Use the table above to answer the following subtraction problems.

19.	Schultz – Okposo		20.	Staios – Green	
21.	Sedin – Ovechkin		22.	O'Sullivan – Semin	
23.	Potulny – Backstrom		24.	Brind'Amour – Horcoff	
25.	Green – O'Sullivan		26.	Semin – Schultz	
27.	Staios – Brind'Amour		28.	Potulny – Schultz	
29.	Semin – Sedin – Schultz		30.	Backstrom – Green	
31.	Horcoff - Ovechkin		32.	Ovechkin – O'Sullivan	
33.	Okposo – Staios		34.	Potulny – Brind'Amour	

Subtracting integers is often the hardest of the four basic operations for students. Sometimes students try to take a shortcut and they don't change the signs to "add the opposite." The problem can be easy to miss when you don't change these signs.

Here are some other explanations to help you remember why we can change the subtracting problem to an addition problem.

PARTY #1: This is a positive party. It is filled with positive people. What could you do to make this party less positive?

- One option would be to make some of the positive people go home. ***This means you are subtracting positive people.***
- A second option would be to bring in some negative people. ***This means you are adding negative people.***

Therefore you have accomplished the same thing two different ways.

***Subtracting positives is the same as adding negatives.***

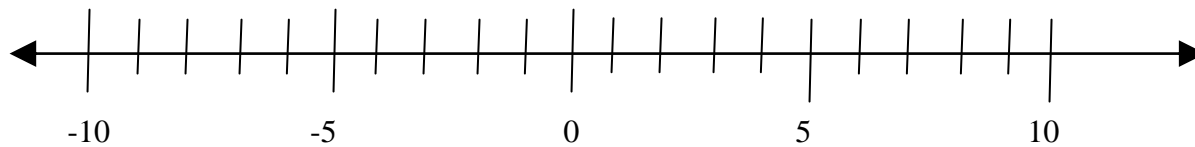
PARTY #2: This is a negative party. It is filled with negative people. What could you do to make this party less negative (more positive)?

- One option would be to make some of the negative people go home. ***This means you are subtracting negative people.***
- A second option would be to bring in some positive people. ***This means you are adding positive people.***

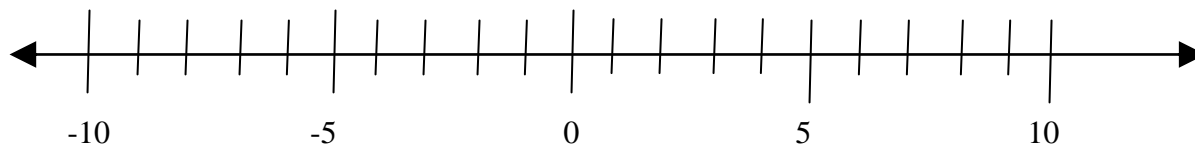
Therefore you have accomplished the same thing two different ways.

***Subtracting negatives is the same as adding positives.***

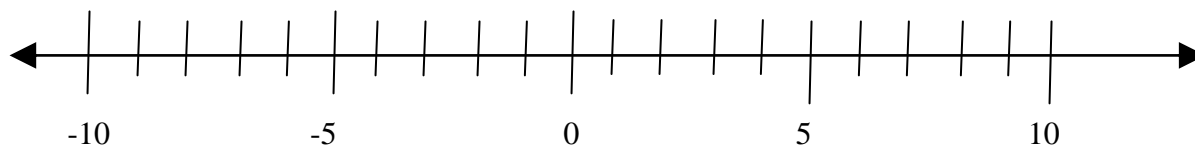
1.  $7 - 2$



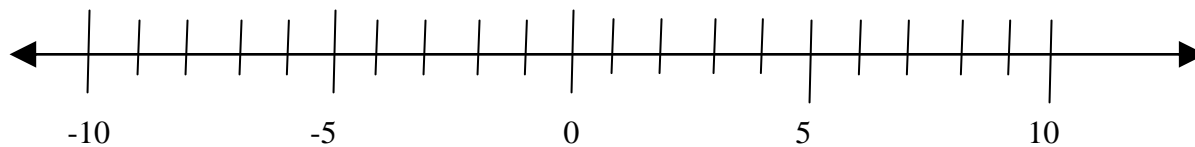
2.  $4 - 6$



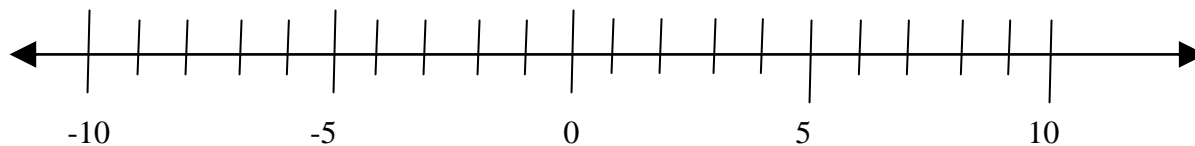
3.  $-6 - -1$



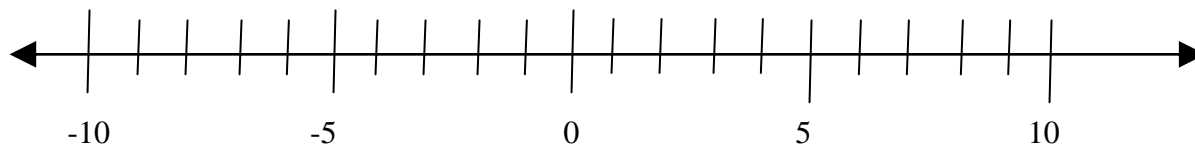
4.  $5 - -3$



5.  $-3 - 4$



6.  $-2 - -5$



**Write the expression for each word problem and then solve.**

1.	Jerry Jones has overdrawn his account by \$15. There is \$10 service charge for an overdrawn account. If he deposits \$60, what is his new balance?		
2.	The outside temperature at noon was 9 degrees Fahrenheit. The temperature dropped 15 degrees during the afternoon. What was the new temperature?		
3.	The temperature was 10 degrees below zero and dropped 24 degrees. What is the new temperature?		
4.	The football team lost 4 yards on one play and gained 9 yards on the next play. What is the total change in yards?		
5.	The temperature in Tahiti is 27 degrees Celsius. The temperature in Siberia is $-33$ degrees Celsius. What is the difference in temperatures?		
6.	Horatio Hornswoggle was born in 57 B.C. and died in 16 A.D. How old was Horatio when he died?		
7.	You have a bank account balance of \$357 and then write a check for \$486. What is your new balance?		
8.	A mountain climber is at an altitude of 4572 meters and, at the same time, a submarine commander is at $-609$ meters. What is the difference in altitudes?		
9.	The Roman Empire was established in 509 B.C. and fell 985 years later. In what year did the Empire fall?		
10.	A scuba diver is at an altitude of $-12$ meters and a shark is at an altitude of $-31$ meters. What is the difference in altitudes?		
11.	A submarine descended 32 feet below the surface of the ocean. It then rose 15 feet to look at a shark. Write an expression and solve to find the submarines current depth.		
12.	In January, the temperature at Mt. Everest averages $-36^{\circ}C$ . It can drop as low as $-60^{\circ}C$ . In July, the average summit temperature is 17 degrees Celsius warmer. What is the average temperature at the summit of Mt. Everest in July?		
13.	What is the difference in elevation between Mt. McKinley (+20,320 feet) and Mt. Everest (+29,035 feet)?		
14.	Find the difference in elevation between Death Valley ( $-282$ feet) and the Dead Sea ( $-1348$ feet).		
15.	The highest ever recorded temperature on earth was $136^{\circ}F$ in Africa and the lowest was $-129^{\circ}F$ in Antarctica. What is the difference of these temperatures recorded on Earth?		
16.	The temperature in Mrs. Cagle's room was $-14^{\circ}F$ yesterday, but it rose $8^{\circ}F$ today. What is the new temperature today?		
17.	The boiling point of water is $212^{\circ}F$ and $-460^{\circ}F$ is its absolute lowest temperature. Find the difference between these two temperatures.		

A negative sign signifies the opposite of an integer. For example, the opposite of 4 is  $-4$ . The opposite of  $-4$  would be  $-(-4)$ . As we have learned from subtracting and our discussions of subtraction  $-(-4)$  is equal to 4.

Simplify each expression.

1.	$-(-8)$		2.	$-(27)$		3.	$- 36 $		4.	$ -45 $	
5.	$- -14 $		6.	$- 0 $		7.	$  -(-12)  $		8.	$-(-57)$	
9.	$  -(-20)  $		10.	$- 51 $		11.	$- -25 $		12.	$-  -(-16)  $	

Match the integer expression with the verbal expression.

13.	$- 12 $		(A) the opposite of negative twelve
14.	$ -12 $		(B) the absolute value of twelve
15.	$- -12 $		(C) the opposite of the absolute value of negative twelve
16.	$-(-12)$		(D) the absolute value of negative twelve
17.	$ 12 $		(E) the opposite of the absolute value of twelve

Solve and explain.

18.	Is there a least positive integer? Explain.	
19.	Is there a greatest positive integer? Explain.	
20.	Is there a smallest integer that is negative? Explain.	
21.	Is there a largest integer that is negative? Explain.	

Write always, never, or sometimes.

22.	The sum of two negative integers is negative...	
23.	The sum of a positive integer and a negative integer is positive...	
24.	The sum of 0 and a negative integer is positive...	
25.	Zero minus a positive integer is negative...	
26.	The difference of two negative integers is negative...	

Temperature on Pluto = $-370^{\circ}F$	Temperature on Mercury = $950^{\circ}F$	Temperature on Earth = $59^{\circ}F$
Temperature on the moon during the day = $417^{\circ}F$	Temperature on the moon during the night = $-299^{\circ}F$	Temperature at moon's poles is constantly $-141^{\circ}F$

Using the table above, write and solve five word problems involving the concepts we have learned about integers. At least three of the problems should involve addition or subtraction.

2010 PGA Tour Masters Results							
Place	Name	4th Round Score	Final Score	Place	Name	4th Round Score	Final Score
1	Phil Mickelson	-5	-16	18	Ernie Els	-4	-1
2	Lee Westwood	-1	-13	26	Kenny Perry	+2	+1
3	Anthony Kim	-7	-12	36	Lucas Glover	+2	+4
4	Tiger Woods	-3	-11	38	Retief Goosen	+1	+6
6	Fred Couples	-2	-11	42	Zach Johnson	+3	+7
10	Ian Poulter	+1	-5	45	Sergio Garcia	+6	+10

In golf, the goal is to get the **lowest** score possible. A score of “E” is equivalent to a 0. Use the table to answer the following questions.

- List the 12 players above in order from best to worst based on their **4<sup>th</sup> round score**. If there is a tie, the player with the better final score should come first.

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.

- Determine the absolute value of the **final score** for each player.

Phil Mickelson		Lee Westwood		Anthony Kim		Tiger Woods	
Fred Couples		Ian Poulter		Ernie Els		Kenny Perry	
Lucas Glover		Retief Goosen		Zach Johnson		Sergio Garcia	

Determine the **sum** of the following groups of players' **final scores**.

25.	Woods + Goosen		26.	Perry + Couples	
27.	Garcia + Kim		28.	Johnson + Els + Garcia	
29.	Mickelson + Poulter		30.	Woods + Kim + Glover	
31.	Westwood + Els		32.	Goosen + Couples + Els	

Determine the **difference** of the following groups of players' **final scores**.

33.	Woods – Goosen		34.	Perry – Couples	
35.	Mickelson – Westwood		36.	Kim – Woods – Els	
37.	Poulter – Couples		38.	Glover – Garcia	
39.	Johnson – Els		40.	Goosen – Garcia – Woods	

**Solve each equation.**

1.	$x = -7 + (-5)$		2.	$10 + 9 = n$	
3.	$w =  -12  + (-5)$		4.	$t =  -13  + (-3)$	
5.	$ -10  +  12  = z$		6.	$ -7  +  8  = k$	
7.	$m = -11 + (-6)$		8.	$0 + (-21) = b$	
9.	$ -13  +  (-11)  = h$		10.	$f = -52 + 52$	
11.	$6 + 5 + (-4) = t$		12.	$ -4  + (-5) +  6  = m$	
13.	$k = -3 + 8 + (-9)$		14.	$a =  -6 + (-2) + (-1) $	
15.	$10 + (-5) + 6 = n$		16.	$c = -8 + 8 + (-10)$	
17.	$36 + (-28) + (-16) + 24 = y$		18.	$x = -31 + 19 + (-15) + (-6)$	

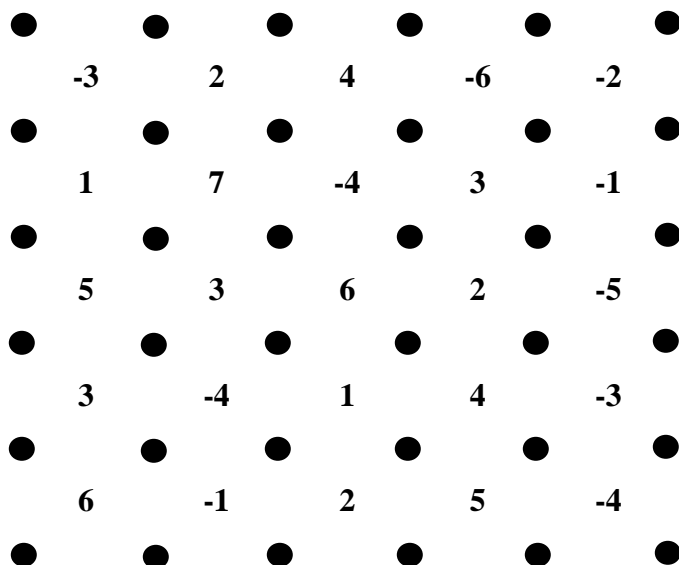
**Solve each equation.**

19.	$-4 - 1 = f$		20.	$h = -5 - (-7)$	
21.	$z = 9 - 12$		22.	$a = -765 - (-34)$	
23.	$652 - (-57) = b$		24.	$c = 346 - 865$	
25.	$d = -136 - (-158)$		26.	$x = 342 - (-456)$	
27.	$y = -684 - (-379)$		28.	$b = -658 - 867$	
29.	$657 - 899 = t$		30.	$3004 - (-1007) = r$	
31.	$-21 - 24 = b$		32.	$-15 - (-86) = a$	

**Tell if each of the subtraction sentences would always, sometimes, or never be true. Support your answer with examples.**

33.	positive – positive = positive		34.	negative – positive = negative	
35.	negative – negative = positive		36.	positive – negative = negative	
37.	negative – positive = positive		38.	positive – positive = negative	

Directions: Players take turns joining any two dots next to each other. Diagonals are not allowed. When a player makes a square, the player's initials go in the box. When all the squares are completed, add up all the integers in your boxes. Then subtract this total from 25. The player with the highest score is the winner.

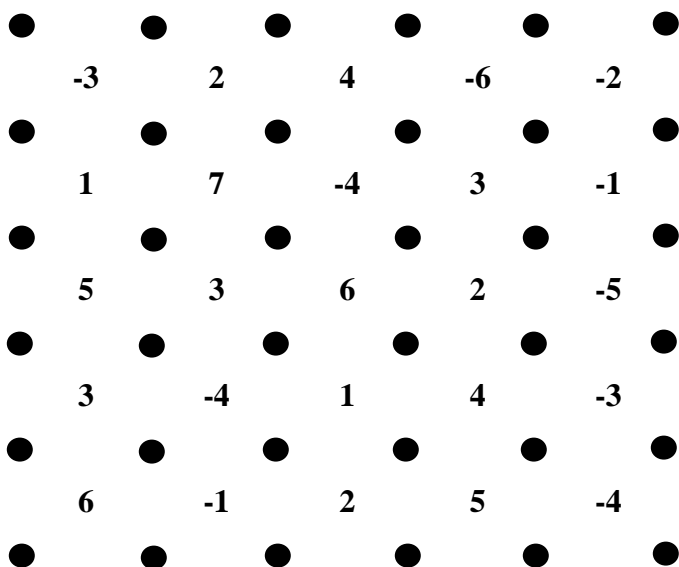
**ROUND 1**

PLAYER 1: TOTAL OF ALL BOXES: \_\_\_\_\_

Now subtract this total from 25:  $25 - \underline{\quad} = \underline{\quad}$  (final score)

PLAYER 2: TOTAL OF ALL BOXES: \_\_\_\_\_

Now subtract this total from 25:  $25 - \underline{\quad} = \underline{\quad}$  (final score)

**ROUND 2**

In two minutes name as many sums of integers that yield a positive 4 as you can. You may loop pairs of integers that are next to each other, either horizontally, vertically, or diagonally.

-4	8	-3	7	-2	4	-7	5	-1	9	-4	7
1	-8	2	-4	5	-5	1	-7	6	-4	8	-5
-9	2	-5	7	-3	8	-8	2	-3	6	-5	4
5	-1	2	-4	4	-6	5	-4	9	-1	4	-7
-7	6	-1	8	-3	2	-1	4	-3	6	-7	3
3	-2	8	-5	7	-9	4	-3	7	-2	5	-5
-8	6	-4	3	-7	2	-9	6	-2	1	-8	5
2	-4	6	-2	5	-1	7	-5	5	-6	9	-3
-6	9	-2	8	-1	7	-2	3	-3	9	-1	6
4	-3	2	-9	7	-3	6	-5	7	-8	3	-2

In two minutes name as many sums of integers that yield a positive 4 as you can. You may loop pairs of integers that are next to each other, either horizontally, vertically, or diagonally.

-4	8	-3	7	-2	4	-7	5	-1	9	-4	7
1	-8	2	-4	5	-5	1	-7	6	-4	8	-5
-9	2	-5	7	-3	8	-8	2	-3	6	-5	4
5	-1	2	-4	4	-6	5	-4	9	-1	4	-7
-7	6	-1	8	-3	2	-1	4	-3	6	-7	3
3	-2	8	-5	7	-9	4	-3	7	-2	5	-5
-8	6	-4	3	-7	2	-9	6	-2	1	-8	5
2	-4	6	-2	5	-1	7	-5	5	-6	9	-3
-6	9	-2	8	-1	7	-2	3	-3	9	-1	6
4	-3	2	-9	7	-3	6	-5	7	-8	3	-2

**Integer Operation Game**

Using a deck of cards, pull out two cards. Add the two cards together using these rules:

- Reds are negative and blacks are positive
- Jacks are 11, Queens are 12, Kings are 13, and Aces are 1.

The **Official Ice Cream Rules** help you remember answer signs on multiplying or dividing problems.

You see ice cream that you like. (+) You eat the ice cream. (+) You are happy! (+)	+	+	+	You see ice cream that you like. (+) You <b>don't</b> eat the ice cream. (-) You are <b>not</b> happy! (-)	+	-	-
You see ice cream that you <b>don't</b> like. (-) You <b>don't</b> eat the ice cream. (-) You are happy! (+)	-	-	+	You see ice cream that you <b>don't</b> like. (-) You eat the ice cream. (+) You are <b>not</b> happy! (-)	-	+	-
When multiplying/dividing two positives or two negatives, the answer is positive.				When multiplying/dividing one negative and one positive, the answer is negative.			

**Solve each equation.**

1.	$m = 2(-8)$		2.	$t = -3(-4)$		3.	$x = 8(-4)$	
4.	$p = (-5)(-5)$		5.	$r = (-12)(5)$		6.	$w = (-4)^2$	
7.	$e = -12(13)$		8.	$v = 14(-3)$		9.	$n = (-14) \bullet 5$	
10.	$h = (-12)^2$		11.	$d = -7 \bullet -8$		12.	$b = -9(10)$	

**Evaluate each expression if  $m = -6$ ,  $n = 3$ , and  $p = -4$ .**

13.	$-4m$		14.	$np$		15.	$2mn$	
16.	$-2m^2$		17.	$-5np$		18.	$-10mp$	
19.	$-12np$		20.	$mnp$		21.	$p^2$	

**Solve each equation.**

22.	$f = -16 \div -4$		23.	$v = -100 \div 10$		24.	$m = -28 \div 7$	
25.	$g = 52 \div -4$		26.	$d = -125 \div -25$		27.	$q = -32 \div -16$	
28.	$e = -120 \div -12$		29.	$t = 45 \div -9$		30.	$p = 33 \div -3$	
31.	$z = -36 \div 12$		32.	$d = -200 \div -25$		33.	$c = -88 \div 11$	

**Evaluate each expression if  $e = -36$ ,  $f = 4$ , and  $g = -3$ .**

34.	$\frac{e}{f}$		35.	$\frac{e}{g^2}$		36.	$\frac{e}{fg}$	
37.	$\frac{e^2}{f}$		38.	$\frac{-48}{g}$		39.	$\frac{eg}{f}$	
40.	$\frac{e^2}{fg}$		41.	$\frac{-100}{f}$		42.	$\frac{e^2}{g^2}$	

Why is it when you multiply two negative numbers you get a positive number? Good question!

### The First Answer

Some people think of a negative as meaning “not”. So if I say, “I am not going to the store,” that is sort of the negative version of “I am going to the store.”

So what do two “nots” mean? Consider this sentence: “You may tell me NOT to go to the store, but I’m NOT going to do what you say!” By negating your negation, I am insisting that I will go to the store.

Two “nots” cancel each other out, just like two negatives.

### The Second Answer

Let’s use negatives with money. A green chip is worth \$5. A red chip means that I owe you \$5. So if you lose \$5, you can represent that by giving up a green chip or by picking up a red chip. So a green chip is +\$5 and a red chip is -\$5.

If you gain three green chips, what happens? 3 times \$5 equals a \$15 gain.

If you gain three red chips, what happens? 3 times -\$5 equals a \$15 loss.

What if you lose three green chips? You just lost \$15. -3 times \$5 equals a \$15 loss.

What if you lose three red chips? You just gained \$15. -3 times -\$5 equals a \$15 gain.

### The Third Answer

How about proving it with a pattern?

$3 \bullet 5$	<b>+15</b>
$2 \bullet 5$	<b>+10</b>
$1 \bullet 5$	<b>+5</b>
$0 \bullet 5$	<b>0</b>
$-1 \bullet 5$	<b>-5</b>
$-2 \bullet 5$	<b>-10</b>

So....

$3 \bullet -5$	<b>-15</b>
$2 \bullet -5$	<b>-10</b>
$1 \bullet -5$	<b>-5</b>
$0 \bullet -5$	<b>0</b>
$-1 \bullet -5$	<b>+5</b>
$-2 \bullet -5$	<b>+10</b>

Complete the table below using your knowledge of integers as well as noticing the pattern that the table creates.

					5				15		
					4				12		
					3	0	3	6	9	12	15
					2				6		
					1				3		
					0				0		
-5	-4	-3	-2	-1	x	0	1	2	3	4	5
					-1						
					-2						
					-3						
					-4						
					-5						

**Solve each equation.**

1.	$x = -6 \bullet -8$		2.	$y = -12 \bullet 4$	
3.	$x = -9 \bullet (-11)$		4.	$y = (-7)(17)$	
5.	$-14(-4) = h$		6.	$-15(10) = k$	
7.	$(10)(-8)(-2) = r$		8.	$(-3)(3)(-10) = t$	
9.	$w = (-12)(-1)(6)$		10.	$y = (20)(-5)(-5)$	
11.	$x = (4)(-16)(-6)$		12.	$n = (16)(9)(-2)$	

**Evaluate each expression if  $x = -5$  and  $y = -6$ .**

13.	$3y$		14.	$-8x$		15.	$-4y$		16.	$12x$	
17.	$-15x$		18.	$-19y$		19.	$-6xy$		20.	$4xy$	

**Divide.**

21.	$16 \div 4$		22.	$-27 \div 3$		23.	$25 \div (-5)$	
24.	$63 \div (-9)$		25.	$-15 \div (-3)$		26.	$14 \div (-7)$	
27.	$-56 \div (-8)$		28.	$72 \div 8$		29.	$-21 \div (-7)$	

**Solve each equation.**

30.	$x = \frac{-150}{-25}$		31.	$k = \frac{-98}{14}$		32.	$x = \frac{-312}{24}$	
33.	$\frac{-208}{-26} = t$		34.	$\frac{-180}{15} = n$		35.	$z = \frac{930}{-30}$	
36.	$\frac{-189}{-21} = p$		37.	$\frac{288}{-18} = d$		38.	$b = \frac{-396}{-36}$	

**Evaluate each expression if  $x = 8$  and  $y = -12$ .**

39.	$x \div 2$		40.	$x \div (-4)$		41.	$36 \div y$		42.	$0 \div y$	
43.	$\frac{y}{-6}$		44.	$\frac{x}{4}$		45.	$\frac{-144}{y}$		46.	$\frac{-136}{x}$	

47.	At noon on Friday, the temperature was 0 degrees. Six hours later the temperature was -18 degrees. On average, what was the temperature change per hour?	
48.	Mangham Architecture has monthly profits of \$1200, \$755, -\$450, \$210, and -\$640 over 5 months. What was the average profit for those months?	

Activity 4-21: **Multiplying Integers**

Name: \_\_\_\_\_

The multiplication table below contains 42 mistakes. Shade in each box that contains a mistake. You will end up with a famous farming expression.

X	2	-4	-9	6	3	8	-1	4	-8	-2	-6	7	-5	9	-7
-3	6	-12	-27	-18	9	-24	-3	12	-24	6	-18	-21	-15	27	-21
9	-18	-36	-81	54	-27	72	9	36	-72	-18	54	63	45	81	63
-6	12	-24	54	-36	18	-48	-6	24	48	12	-36	-42	-30	-54	-42
5	-10	-20	-45	30	-15	40	5	20	-40	-10	30	35	25	45	35
-7	14	-28	-63	-42	21	-56	-7	28	-56	14	-42	-49	-35	63	-49

Solve.

1.	$-9 + (-13)$		2.	$-2(-25)$		3.	$(-6 + 17) - 20$	
4.	$-50 - 30$		5.	$-56 \div (-8)$		6.	$(-5 - (-6)) \bullet -87$	
7.	$32 + -37$		8.	$(-15 \div 3) + 14$		9.	$(-13 \bullet 2) + -12$	
10.	$(-10 + -5)(-2)$		11.	$(-3 - 4) \div 7$		12.	$(-5 - -30)(3)$	
13.	$(-9 \bullet 6) + -4$		14.	$(-30 - -22) \bullet 6$		15.	$(-8 \bullet -8) - -8$	
16.	$(20 \div 4) \bullet -11$		17.	$(28 - -10) - 7$		18.	$12 - 36$	
19.	$(-13 + -12)(-4)$		20.	$(4 \bullet -6) \div -8$		21.	$(-64 \div 2) \div -2$	
22.	$-5 \bullet 20$		23.	$30 \div -2$		24.	$(-40 + -50) \div 9$	
25.	$-9 - (-19)$		26.	$-7 \bullet -11$		27.	$(42 \div -7) - 6$	
28.	$-7 + -11$		29.	$-60 \div -5$		30.	$(-12 + -18) \div -15$	

The symbols  $+$ ,  $-$ ,  $\times$ , and  $\div$  can be used only once in each number sentence below. Remember the correct order of operations!

31.	$+6$	$-3$	$2 = 0$	32.	$-6$	$-3$	$-7 = -2$			
33.	$10$	$(5$	$5) = 9$	34.	$(-4$	$-2)$	$(-10$	$5) = 6$		
35.	$30$	$[(-6$	$-3)$	$-1] = 28$	36.	$-6$	$(-2$	$-1)^2 = -54$		
37.	$(30$	$-6)$	$(-3$	$-1) = 20$	38.	$(-3$	$8)$	$(5$	$6) = -1$	
39.	$5$	$-5$	$(5$	$-5) = 9$	40.	$-3$	$(-6$	$-2)$	$-3 = 12$	
41.	$(-4$	$4)$	$(4$	$-4) = -8$	42.	$(-8$	$2)^2$	$-4 = -9$		
43.	$(3$	$-3)^2$	$(-3$	$3)^2 = 36$	44.	$-1$	$2$	$1$	$-2$	$2 = -4$

45.	I am an integer. When you add $-1$ to me, the sum is the opposite of the difference when you subtract $-5$ from me. What integer am I?	
46.	Find two integers having a product of negative $15$ and a sum of positive $2$ .	
47.	Find two integers having a product of negative $30$ and a sum of negative $1$ .	
48.	Find two integers having a product of positive $27$ and a sum of negative $12$ .	
49.	Find two integers having a product of negative $64$ and a sum of positive $12$ .	
50.	Find two integers having a product of positive $40$ and a sum of negative $13$ .	

Complete the table below.

	$x$	$ x $	$ x +2$	$2 x $
1.	4			
2.	3			
3.	2			
4.	1			
5.			2	
6.	-1			
7.	-2			
8.	-3			
9.	-4			

10.	When $x$ is negative, its absolute value is....	
11.	$ x $ is negative always, sometimes or never?	
12.	$ x +2$ is positive always, sometimes or never?	
13.	$ x $ is less than $2 x $ always, sometimes or never?	
14.	$2 x $ is greater than $ x +2$ always, sometimes or never?	

Kyle has four integer cards. Two cards show positive integers and two cards show negative integers.

-9	8	4	-5
----	---	---	----

15.	What is the sum of all four cards?	
16.	What is the largest sum Kyle can make with two cards?	
17.	What is the smallest sum Kyle can make with two cards?	
18.	What is the smallest sum that Kyle can make with three cards?	
19.	What is the largest difference Kyle can make with two cards?	
20.	What is the smallest difference Kyle can make with two cards?	
21.	What is the difference closest in value to 10 that Kyle can make with two cards?	
22.	What is the largest product Kyle can make with two cards?	
23.	What is the smallest product Kyle can make with two cards?	
24.	What is the largest product Kyle can make with three cards?	
25.	What is the smallest quotient Kyle can make with two cards?	

Choose one of the following topics: Weather (Temperature), Money, Golf, Time (Years), Elevations and Altitudes, Game/Video Game Scores, Football, or Physical Science (Atoms and Molecules). Then pick a more specific theme such as “Jeopardy!” under the main topic of Games or “Scuba Diving” under the topic Elevations and Altitudes. Check with Mr. Mangham if you have another topic you wish to use which is not on this list.

Your Survival Guide will consist of 8 pages (2 folded pieces of construction paper). The goal is to teach integers to students who have not learned about them yet. The following details what information should be included on each page.

---

**Page 1:** Title Page – Title, Pictures, Theme

- Your title must include the words “Survival Guide to Integers”

(10 points)

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**Page 2:** Introduction to Integers

- State at least three places of where we use negative numbers in real life (include specific examples of how they would be used in each)
- Give **definitions and examples** for these words:
  - Integer (provide examples of integers and numbers that are not integers)
  - Opposite of a number
  - Absolute value

(20 points)

---

ADDITION – Pages 3 and 4 – **Make sure to include a variety of samples** (positive plus negative where there are more positives, positive plus negative where there are more negatives, negative plus negative, etc.)

**Page 3:** Addition of integers

- **Teach** how to add integers using both:
  - Yellow and red chips (introduce zero pairs)
  - Number lines
- Explain in words what is happening
- Provide specific examples of each

**Page 4:** Addition of integers

- **Teach** how to add integers in mathematical expressions (without chips or a number line) by providing specific examples
- Write 4 word problems involving adding integers and relating to your theme. Do not solve. Your problems must include a mixture of negative and positive numbers and must make logical sense.

(20 points)

---

SUBTRACTION – Pages 5 and 6 – **Make sure to include a variety of samples** which show all the different possibilities for subtraction problems

**Page 5:** Subtraction of integers

- **Teach** how to subtract integers using both:
  - Yellow and red chips (make sure to include zero pair problems)
  - Number lines
- Explain in words what is happening
- Provide specific examples of each

**Page 6:** Subtraction of integers

- **Teach** how to subtract integers in mathematical expressions (without chips or a number line) by providing specific examples
- Write 4 word problems involving subtracting integers and relating to your theme. Do not solve. Your problems must include a mixture of negative and positive numbers and must make logical sense.

(30 points)

---

**MULTIPLICATION AND DIVISION – Pages 7 and 8**

**Page 7:** Rules for multiplying and dividing integers

- Create your own graphic to demonstrate “The Official Kissing Rules”
- Your graphic should relate to your theme in some way
- **Teach** (explain) how the rules work and how they apply to problems
- Provide specific examples with numbers

**Page 8:** Multiplying and dividing integers

- Write 5 problems which involve a mixture of multiplication and division of integers. You do not need any word problems.
- Write 5 problems which involve integers and order of operations. You must include at least one multiply or divide in each. Also include other operations (addition, subtraction), parenthesis, exponents, square roots, etc.

(20 points)

---

**The following, in order, will play a major part in your overall grade:**

- 1) Each topic above is completed with mathematical accuracy
- 2) Each topic is well explained (i.e. pretend you are teaching someone who has never seen a negative number before)
- 3) A wide variety of examples are given (combinations of positive and negative numbers)
- 4) Your overall use of a theme
- 5) Neatness, Colorful, Easy-to-follow

Want another example instead of the Kissing Rules? How about this one:

Good things happen to good people, this is good

Good things happen to bad people, this is bad

Bad things happen to good people, this is bad

Bad things happen to bad people, this is good

## SURVIVAL GUIDE TO INTEGERS GRADING RUBRIC

NAME: \_\_\_\_\_

		Possible Points	Your score
Cover and Theme	Contains Theme	5	
	Says Survival Guide to Integers	3	
	Neat and interesting	2	
Intro to Integers	What are integers (definition/examples)	6	
	Where used in real-life	6	
	Opposite definition/examples	4	
	Absolute value definition/examples	4	
Addition	Add with chips (zero pairs)	3	
	Add on number line	3	
	Add mathematically	3	
	Written explanation	4	
	Wide variety of examples	4	
	Four word problems with +/- integers	3	
Subtraction	Subtract with chips (zero pairs)	4	
	Subtract on number line	4	
	Subtract mathematically	6	
	Written explanation	6	
	Wide variety of examples	6	
	Four word problems with +/- integers	4	
Multiplication/ Division	Kissing Rule table with theme	4	
	Apply rules in examples	3	
	Written explanation	4	
	5 problems	3	
	5 order of operation problems	3	
	10 correct answers listed	3	
<b>TOTAL</b>		<b>100</b>	

In the space provided write an “A” if you agree or a “D” if you disagree.

1.	I prefer reading a story rather than listening to someone tell it.	
2.	I would rather watch television than listen to the radio/iPod.	
3.	I remember faces better than names.	
4.	I like classrooms with lots of posters and pictures around the room.	
5.	The appearance of my handwriting is important to me.	
6.	I think more often in pictures.	
7.	I am distracted by visual disorder or movement.	
8.	I have difficulty remembering directions that were told to me.	
9.	I would rather watch athletic events than participate in them.	
10.	I tend to organize my thoughts by writing them down.	
11.	My facial expression is a good indicator of my emotions.	
12.	I tend to remember names better than faces.	
13.	I would enjoy taking part in dramatic events like plays.	
14.	I tend to sub vocalize and think in sounds.	
15.	I am easily distracted by sounds.	
16.	I easily forget what I read unless I talk about it.	
17.	I would rather listen to the radio/iPod than watch TV.	
18.	My handwriting is not very good.	
19.	When faced with a problem, I tend to talk it through.	
20.	I express my emotions verbally.	
21.	I would rather be in a group discussion than read about a topic.	
22.	I prefer talking on the phone rather than writing a letter/email to someone.	
23.	I would rather participate in athletic events than watch them.	
24.	I prefer going to museums when I can touch exhibits.	
25.	My handwriting gets worse when the space becomes smaller.	
26.	My mental pictures are usually accompanied by movement.	
27.	I like being outdoors and doing things like biking, camping, swimming, hiking, etc.	
28.	I remember best what was done rather than what was seen or talked about.	

29.	When faced with a problem, I often select the solution involving the greatest activity.	
30.	I like to make models or other hand crafted items.	
31.	I would rather do experiments than read about them.	
32.	My body language is a good indicator of my emotions.	
33.	I have difficulty remembering verbal directions if I have not done the activity before.	

**SCORING:**

Total number of A responses in questions 1-11	
Total number of A responses in questions 12-22	
Total number of A responses in questions 23-33	

The first number is your visual score. If this number is much higher than your other two you are a visual learner: These learners need to see the teacher's body language and facial expression to fully understand the content of a lesson. They tend to prefer sitting at the front of the classroom to avoid visual obstructions (e.g. people's heads). They may think in pictures and learn best from visual displays including: diagrams, illustrated text books, overhead transparencies, videos, flipcharts and hand-outs. During a lecture or classroom discussion, visual learners often prefer to take detailed notes to absorb the information.

**Visual Learner Characteristics**

Visual learners are those who learn through seeing things. Look over the characteristics below to see if they sound familiar. A visual learner:

- Is good at spelling but forgets names.
- Needs quiet study time.
- Has to think awhile before understanding lecture.
- Is good at spelling.
- Likes colors & fashion.
- Dreams in color.
- Understands/likes charts.
- Is good with sign language.

**Learning Suggestions for Visual Learners**

- Draw a map of events in history or draw scientific process.
- Make outlines of everything!
- Copy what's on the board.
- Ask the teacher to diagram.
- Diagram sentences!
- Take notes, make lists.
- Watch videos.
- Color code words, research notes.
- Outline reading.

Use flashcards.

Use highlighters, circle words, underline.

**Best Test Type for Visual Learners:**

Diagramming, reading maps, essays (if you've studied using an outline), showing a process

**Worst test type:**

Listen and respond tests

The second number is your auditory score. If this number is much higher than your other two you are an auditory learner: They learn best through verbal lectures, discussions, talking things through and listening to what others have to say. Auditory learners interpret the underlying meanings of speech through listening to tone of voice, pitch, speed and other nuances. Written information may have little meaning until it is heard. These learners often benefit from reading text aloud and using a tape recorder.

**Auditory Learner Characteristics**

Auditory learners are those who learn best through hearing things. Look over these traits to see if they sound familiar to you. You may be an auditory learner if you are someone who:

Likes to read to self out loud.

Is not afraid to speak in class.

Likes [oral reports](#)

Is good at explaining.

Remembers names.

Notices sound effects in movies.

Enjoys music.

Is good at grammar and foreign language.

Reads slowly.

Follows spoken directions well.

Can't keep quiet for long periods.

Enjoys acting, being on stage.

Is good in study groups.

**Auditory Learners Can Benefit from:**

Using word association to remember facts and lines.

Recording lectures.

Watching videos.

Repeating facts with eyes closed.

Participating in group discussions.

Using audiotapes for language practice.

Taping notes after writing them.

**Worst test type:**

Reading passages and writing answers about them in a timed test.

**Best test type:**

Auditory Learners are good at writing responses to lectures they've heard. They're also good at oral exams.

The third number is your tactile/kinesthetic score. If this number is much higher than your other two you are a tactile/kinesthetic learner: Tactile/Kinesthetic persons learn best through a hands-on

approach, actively exploring the physical world around them. They may find it hard to sit still for long periods and may become distracted by their need for activity and exploration.

### **Kinesthetic Learner Characteristics**

Kinesthetic learners are those who learn through experiencing/doing things. Look over these traits to see if they sound familiar to you. You may be a kinesthetic learner if you are someone who:

Is good at sports.

Can't sit still for long.

Is not great at spelling.

Does not have great handwriting.

Likes science lab.

Studies with loud music on.

Likes adventure books, movies.

Likes role playing.

Takes breaks when studying.

Builds models.

Is involved in martial arts, dance.

Is fidgety during lectures.

### **Kinesthetic Learners Can Benefit from:**

Studying in short blocks.

Taking lab classes.

Role playing.

Taking field trips, visiting museums.

Studying with others.

Using memory games.

Using flash cards to memorize.

### **Worst Test Type:**

Long tests, essays.

### **Best Test Type:**

Short definitions, fill-ins, multiple choice.

**Integer** – all whole numbers and their opposites (or positive and negative counting numbers and zero)

**Absolute value** – the distance a number is from zero. The absolute value of -8 is 8. The absolute value of 11 is 11.  $|-8| = 8$   $|11| = 11$

**Opposite of a number** – To find the opposite, simply change the sign. A number and its opposite add up to zero. The opposite of 5 is -5. The opposite of -12 is 12.

<b>Adding Integers</b>	
two positives	Add the numbers like usual Adding a positive and a positive will create more positives.
two negatives	Add the numbers, put a negative sign in front of the answer Adding a negative and a negative will create more negatives.
one positive and one negative	When adding a positive and a negative, some positives and negatives will combine and cancel each other out.  Ask: Do I have more positives or more negatives? The answer will determine the sign of the final answer. Then ask, how many more positives do I have than negatives (or how many more negatives do I have than positives?). This will determine the correct number to go with the sign.

<b>Subtracting Integers</b>	
all	Subtracting is the opposite of addition. Thus, the easy way to subtract a number is to simply <b>add its opposite</b> .  Ex. $6 - -3 = 6 + +3 = 9$ Ex. $-12 - 7 = -12 + -7 = -19$

<b>Multiplying/Dividing Integers</b>			
When multiplying and dividing, determine the number as with normal multiplication and division. Use the table below, The Kissing Rules, to determine the sign.			
Phrase to remember...	This	x	this = this
A girl sees a boy she likes (+). She does kiss him (+). She is happy (+).	+	+	+
A girl sees a boy she likes (+). She does not kiss him (-). She is sad (-).	+	-	-
A boy sees a girl he doesn't like (-). He does kiss her (+). He is sad (-).	-	+	-
A boy sees a girl he doesn't like (-). He does not kiss her (-). He is happy (+).	-	-	+

**ADDING INTEGERS**

When adding two positive integers, add the numbers together. Your answer is always going to be positive. Ex.  $5 + 6 = 11$

When adding two negative integers, add the two numbers together and place a negative sign in front of your answer. Ex.  $-6 + -3 = -9$

When adding a positive and a negative integer, first ask yourself, "Are there more positives or negatives?" If there are more positives, your answer is going to be positive. If there are more negatives, then your answer is going to be negative. Then ask yourself, "How many more (negatives/positives) are there than (positives/negatives)?"

Ex.  $-8 + 6$  Are there more negatives or positives? Negatives. How many more?  $8 - 6 = 2$ . So there are 2 more negatives than positives and your final answer is  $-2$ .

**SUBTRACTING INTEGERS**

The easiest way to subtract integers is to always turn the expression into an addition problem.

To subtract an integer **add its opposite**. An integer and its opposite are the same distance from 0 on a number line so the integers 5 and  $-5$  are opposites.

Then follow the rules above for adding.

Ex.  $-7 - -8$  Change the problem to  $-7 + +8$ . There are more positives than negatives. How many more? One. So your answer is  $+1$ .

**MULTIPLYING/DIVIDING INTEGERS**

When multiplying or dividing integers, multiply and divide just like you would for positive numbers to get the number part of the answer. Then use the table below to determine the correct sign.

First Sign	Second Sign	Answer Sign	First Sign	Second Sign	Answer Sign
+	+	+	+	-	-
-	-	+	-	+	-
When multiplying two positives or two negatives, the answer is positive.			When multiplying one negative and one positive, the answer is negative.		

Farmer Ann was chosen to go into town and spend the entire amount of \$100 of a tax return on exactly 100 farm animals – some cattle, some sheep, and some horses. She discovered that sheep cost \$0.50 each, cattle cost \$1.00 each, and horses cost \$10.00 each. This purchase, to buy exactly 100 animals for \$100 and have some of each kind of animal, proved more difficult than she had thought it would be. Your job is to find a solution to Farmer Ann’s dilemma.

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A good method to solve this type of problem is to use guess and check. There are several possible ways and the one we are going to use is to guess some total of animals that add up to 100. From those three numbers determine what your overall price is. Based on whether it was too high or too low, you can now switch out some animals and make another guess.

Make at least 10 guesses to determine a correct answer to this problem. For each guess you must have a total of 100 animals. There is more than one right answer, so keep guessing even if you guess correctly early on.

	<b>Cattle (\$1)</b>	<b>Sheep (\$0.50)</b>	<b>Horses (\$10)</b>	<b>Total \$\$\$</b>
Guess 1				
Guess 2				
Guess 3				
Guess 4				
Guess 5				
Guess 6				
Guess 7				
Guess 8				
Guess 9				
Guess 10				
Guess 11				
Guess 12				
Guess 13				
Guess 14				
Guess 15				

## 10 all-time hottest temperatures

Obtained from state temperature records, NCDC

1. Death Valley, California	134
2. Lake Havasu, Arizona	128
3. Laughlin, Nevada	125
4. Lakewood, New Mexico	122
5. Alton, Kansas	121
6. Steele, North Dakota	121
7. Ozark, Arkansas	120
8. Tipton, Oklahoma	120
9. Seymour, Texas	120
10. Usta, South Dakota	120
1. Prospect Creek, Alaska	-80
2. Rogers Pass, Montana	-70
3. Peters Sink, Utah	-69
4. Riverside, Wyoming	-66
5. Maybell, Colorado	-61
6. Tower, Minnesota	-60
7. Parshall, North Dakota	-60
8. Island Park Dam, Idaho	-60
9. McIntosh, South Dakota	-58
10. Couderay, Wisconsin	-55

**PRESS CONTROL & CLICK ON THE LINK**

<http://www.homeschoolmath.net/online/integers.php>

<http://www.gamequarium.com/integers.html>

<http://www.kn.pacbell.com/wired/fil/pages/listintegersbr.html>

<http://www.interactivemaths.net/taxonomy/term/99>

<http://teacherweb.com/MA/KingPhilipMiddleSchool/MrsMcGovern-7thGradeMathematics/ap3.stm>

<http://www.squidoo.com/integers>

<http://www.quia.com/cb/64603.html>

<http://classroom.jc-schools.net/basic/math-integ.html>

<http://cte.jhu.edu/techacademy/web/2000/heal/siteslist.htm>

(Go down to Algebra and Pre-Algebra sites and many integer links are listed.)

<http://www.learningwave.com/chapters/workingfront/integersfront.html>

<http://www.shodor.org/interactivate/activities/ArithmeticFour/>

<http://www.onlinemathlearning.com/integer-games.html>

<http://www.mathgoodies.com/lessons/vol5/subtraction.html>

<http://www.learningshortcuts.com/s62/60/chapterA1.html>

<http://www.mathguide.com/cgi-bin/quizmasters/IntegersSubtract.cgi>