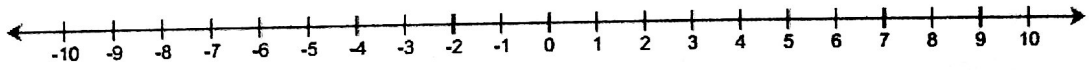
7TH GRADE MATH (WEDNESDAY) (7 PAGES)

HOME
~~Group~~ Work

1. On a number line, find the difference of each number and 4. Complete the table to support your answers. The first example is provided.

Number	Subtraction Expression	Addition Expression	Answer
10	$10 - 4$	$10 + (-4)$	6
2			
-4			
-6			
1			



2. Find the differences.
   a. $-2 - (-5)$

   b. $11 - (-8)$

   c. $-10 - (-4)$

3. Write two equivalent expressions that represent the situation. What is the difference in their elevations?
An airplane flies at an altitude of 25,000 feet. A submarine dives to a depth of 600 feet below sea level.

4. You and your partner were playing the Integer Game in class. Here are the cards in both hands.

Your hand

−8	6	1	−2

Your partner's hand

9	−5	2	−7

a. Find the value of each hand. Who would win based on the current scores? (The score closest to 0 wins.)

Your hand	Your partner's hand

_____ would win based on the current score because _____.

b. Find the value of each hand if you discarded the −2 and selected a 5, and your partner discarded the −5 and selected a 5. Show your work to support your answer.

Your hand	Your partner's hand

c. Use your score values from part (b) to determine who would win the game now.

_____ would win the game.

5. Write the following expressions as a single integer.

a. $-2 + 16$

Answer:_____

b. $-2 - (-16)$

Answer:_____

c. $18 - 26$

Answer:_____

d. $-14 - 23$

Answer:_____

e. $30 - (-45)$

Answer:_____

f. $-30 - (-45)$

Answer:_____

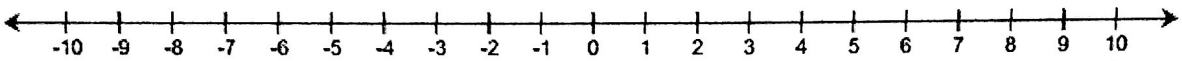
g. $-94 - (-23)$

Answer:_____

6. Explain what is meant by the following, and illustrate with an example:

"For any real numbers, p and q, $p - q = p + (-q)$."

7. Choose an integer between -1 and -5 on the number line, and label it point P. Locate and label the following points on the number line. Show your work.



a. What number did you choose for p?

P = _____

b. Point A: $P - 5$

Answer:_____

c. Point B: $(P - 4) + 4$

Answer:_____

d. Point C: $-P - (-7)$

Answer:_____

Challenge Problem:

8. Write two equivalent expressions that represent the situation. What is the difference in their elevations?

An airplane flies at an altitude of 26,000 feet. A submarine dives to a depth of 700 feet below sea level.

Expression #1	Expression #2

9. Anita recorded the daily high and low temperatures as 13°F and −3°F, respectively.

a. Write the difference in temperatures, in °F, as a subtraction equation. Then write the difference in temperatures as an addition equation.

b. Give an example of a positive temperature and a negative temperature that have a difference of 5°F.

10. Indi, Mark, and Tess each pick a slip of paper with a subtraction expression written on it. The person holding the card with the greatest value wins a prize. Who wins the prize?

Indi	Mark	Tess
$2 - 3$	$-7 - (-4)$	$-1 - (-7)$

_____ wins

11. Consider the following problems.

a. Write a subtraction equation that involves one negative integer but results in a positive difference. Does the other integer have to be positive? Explain your answer.

_____

_____

b. Write a subtraction problem involving two positive integers with a negative difference. Explain the relationship between the two integers that must exist for the difference to be negative.

_____

_____

12. Evaluate the following expressions.

a) $2^3 - 9 - (-12)$

Solution: _____

b) $-15 - 44 - (-20)$

c) $-15 + 3^4 - 64$

Name _____ Date _____ Class _____

MODULE 1

Adding and Subtracting Integers

Challenge

Maria wants to compare the difficulty of different bicycle paths in her town. She recorded the elevation of the trail at each mile marker. She also calculated the difference in the elevation at each mile marker with the elevation at the previous mile marker. The difficulty score she assigned to each trail is the sum of these differences.

	Elevation (ft)					
Trail	**Start**	**Mile 1**	**Mile 2**	**Mile 3**	**Mile 4**	**Mile 5**
Easy Rider	1	–2	10	–1	120	–5
Breakneck	–2	100	–2	150	–8	250
Lake Shore	–10	0	6	55	–1	60
Mountain View	40	–2	120	35	200	180

For example, to find the difficulty of the Easy Rider trail, Maria first calculated the differences in elevation at each mile marker.

	Mile 1	**Mile 2**	**Mile 3**	**Mile 4**	**Mile 5**
Difference in Elevation	–2 – 1 = –3	10 – (–2) = 12	–1 – 10 = –11	120 – (–1) =121	–5 – 120 = –125

The difficulty score of the Easy Rider is the sum of these differences.

$$-3 + 12 + (-11) + 121 + (-125) = -6$$

1. Which trail has the highest difficulty rating? Show your work in a table.

Solve.

2. –3 ☐ 5 ☐ –4 ☐ –10 ☐ 18

Each of the boxes in the expression above can be filled with + or – .

What is the greatest possible value of the expression? Explain.