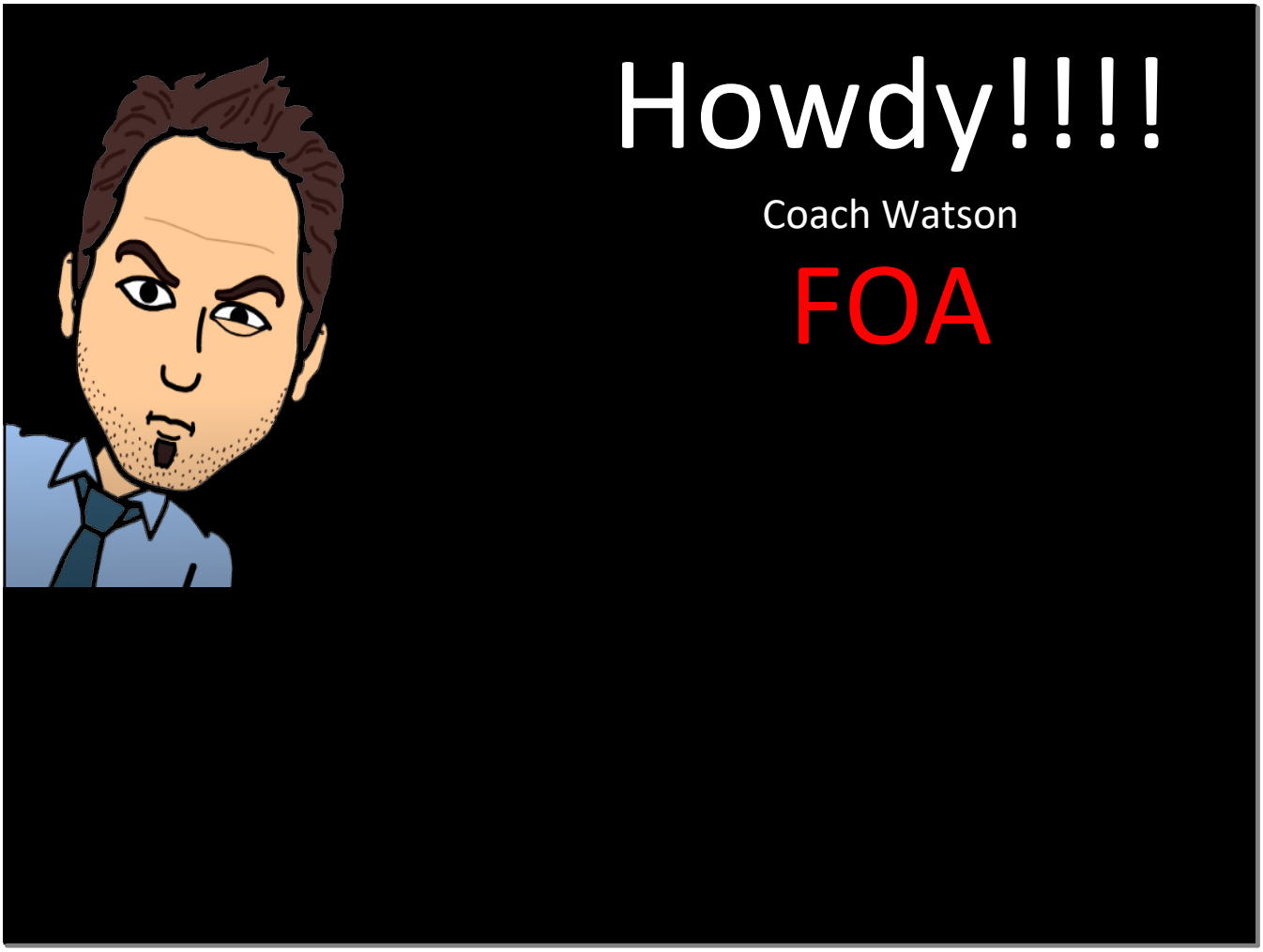


Jan 5-3:51 PM

Foundations of Algebra — Day 1 Integer Addition and Subtraction — Practice

1	2	3	4	5
$4-6=$ -2	$3-9=$	$2-7=$ -5	$1-4=$	$7-10=$ -3
$5+-2=$ 3	$6+-5=$	$8+-4=$ 4	$9+-3=$	$7+-3=$ 4
$2+-7=$ -5	$2+-3=$	$4+-7=$ -3	$2+-7=$	$5+-9=$ -4
$8-(-3)=$ 11	$10-(-5)=$	$5-(-6)=$ 11	$2-(-3)=$	$4-(-5)=$ 9
$9+-6=$ 3	$7+-2=$	$8+-3=$ 5	$7+-3=$	$10+-7=$ 3
$-3-4=$ -7	$-1-7=$	$-3-7=$ -10	$-2-4=$	$-7-5=$ -12
$5-1=$ 4	$4-2=$	$7-4=$ 3	$5-3=$	$6-3=$ 3
$-6+7=$ 1	$-5+9=$	$-6+9=$ 3	$-4+7=$	$-2+6=$ 4
$-5-3=$ -8	$-6-2=$	$-3-6=$ -9	$-7-5=$	$-8-5=$ -13
$-2-(-6)=$ 4	$-3-(-3)=$	$-4-(-5)=$ 1	$-7-(-5)=$	$-5-(-7)=$ 2
Score: ___/10	Score: ___/10	Score: ___/10	Score: ___/10	Score: ___/10

a) -4×5 -20

b) 3×3 9

c) -5×-2 10

d) 7×-3 -21

e) -6×4 -24

f) -7×-5 35

g) $\frac{-35}{5}$ -7

h) $\frac{30}{5}$ 6

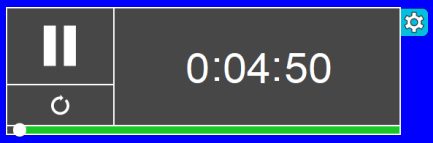
i) $\frac{-24}{-3}$ 8

j) $\frac{81}{-9}$ -9

k) $\frac{27}{-9}$ -3

l) $\frac{-20}{-10}$ 2

Adding and Subtracting Warm-Up



Name : _____ Score : _____

Adding Integers

L1S1

Find the sum.

1) 8 + 20 = _____

2) (–15) + (–3) = _____

3) 17 + (–19) = _____

4) (–6) + 20 = _____

5) (–11) + 4 = -7

6) 18 + (–17) = _____

7) (–7) + (–10) = _____

8) 10 + 2 = _____

9) 4 + (–16) = _____

10) (–1) + (–14) = _____

11) 15 + 9 = _____

12) (–8) + 16 = _____

13) (–12) + 14 = _____

14) 13 + (–9) = _____

15) (–18) + (–5) = _____

16) (–20) + 11 = _____

Name : _____ Score : _____

Subtracting Integers

L1S1

Find the difference.

1) (–13) – (–5) = + +5 −8

2) (–9) – 16 = + -16 - 25

3) 7 – (–11) = _____

4) 20 – 3 = _____

5) (–18) – 14 = _____

6) (–10) – (–10) = _____

7) 15 – 2 = _____

8) 8 – (–12) = _____

9) (–20) – 9 = _____

10) 17 – 6 = _____

11) (–8) – (–14) = _____

12) 12 – (–3) = _____

13) 5 – 19 = _____

14) (–16) – 10 = _____

15) 18 – (–4) = _____

16) (–17) – (–1) = _____

Name : _____ Score : _____

Answer key

Adding Integers

L1S1

Find the sum.

1) 8 + 20 = **28**

2) (–15) + (–3) = **–18**

3) 17 + (–19) = **–2**

4) (–6) + 20 = **14**

5) (–11) + 4 = **–7**

6) 18 + (–17) = **1**

7) (–7) + (–10) = **–17**

8) 10 + 2 = **12**

9) 4 + (–16) = **–12**

10) (–1) + (–14) = **–15**

11) 15 + 9 = **24**

12) (–8) + 16 = **8**

13) (–12) + 14 = **2**

14) 13 + (–9) = **4**

15) (–18) + (–5) = **–23**

16) (–20) + 11 = **–9**

Name : _____ Score : _____

Answer key

Subtracting Integers

L1S1

Find the difference.

1) (–13) – (–5) = **–8**

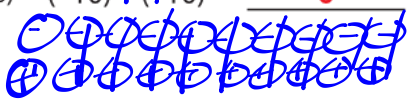
2) (–9) – 16 = **–25**

3) 7 + (+11) = **18**

4) 20 – 3 = **17**

5) (–18) – 14 = **–32**

6) (–10) + (+10) = **0**



7) 15 – 2 = **13**

8) 8 – (–12) = **20**

9) (–20) – 9 = **–29**

10) 17 – 6 = **11**

11) (–8) – (–14) = **6**

12) 12 – (–3) = **15**

13) 5 – 19 = **–14**

14) (–16) – 10 = **–26**

15) 18 – (–4) = **22**

16) (–17) – (–1) = **–16**

Printable Math Worksheets @ www.mathworksheets4kids.com

Todays Notes

Jul 30-4:21 PM

Multiplying & Dividing Integers

Have you ever wondered where the rules for multiplying integers come from? You probably remember your teacher telling you the following rules when it comes to multiplying:

Rules for Multiplying Integers

POSITIVE X POSITIVE = POSITIVE
NEGATIVE X POSITIVE = NEGATIVE
POSITIVE X NEGATIVE = NEGATIVE
NEGATIVE X NEGATIVE = POSITIVE

Where did these rules come from???

Rules for Dividing Integers

POSITIVE ÷ POSITIVE = POSITIVE
NEGATIVE ÷ POSITIVE = NEGATIVE
POSITIVE ÷ NEGATIVE = NEGATIVE
NEGATIVE ÷ NEGATIVE = POSITIVE

Where did these rules come from???

Remember, multiplication is _____.

Expression	Description	Addition Sentence	Product
3 x 4			
3 x -4			
-3 x 4			
-3 x -4			

Practice: Answer the following questions regarding multiplication.

1. Determine the single digit integers that make each number sentence true:

a. _____ x _____ = -25 b. _____ x _____ = 18 c. _____ x 4 = 16

2. Determine the product of the following expressions:

a. -3 x 2 x -4 = _____ b. -3 x -2 x -4 = _____ c. 3 x -2 x 4 = _____

d. -3 x -2 x 4 = _____ e. 3 x 2 x -4 = _____ f. -3 x 2 x 4 = _____

g. If the number of integers that are negative is an odd number, the sign of the product will be negative

h. If the number of integers that are negative is an even number, the sign of the product will be positive

10

3. Determine the sign of each product and how you know:
   a. the product of four negative integers: Positive, even # of negatives signs.
   b. the product of seven negative integers: Negative, odd # of negative signs
   c. the product of three positive numbers and nine negative numbers: Negative, odd # of negative signs

Critical Thinking: Complete the table by writing the sign (+, -, or +/-) to describe the sum, difference, product, or quotient. Then given an example in each box.

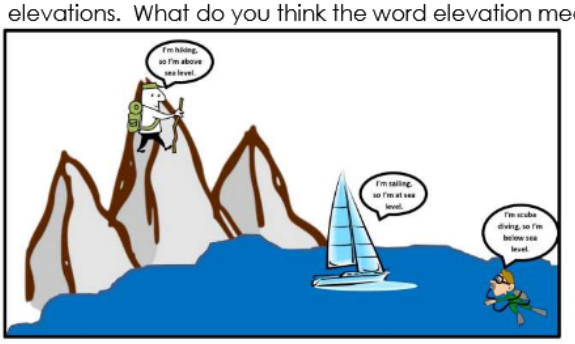
Description of Integers	Addition (Sum)	Subtraction (Difference)	Multiplication (Product)	Division (Quotient)
Two positive integers				
Two negative integers				
One positive & one negative integer				

Day 3: Real World Applications of Integers

Scenario #1: For Tim's 15th birthday, he received $150 in cash from his parents. His dad took him to the bank to open a savings account. Tim gave the cash to the banker to deposit into the account. The banker credited Tim's new account $150 and gave Tim a receipt. One week later Tim deposited another $25 that he had earned as allowance. The next month, Tim's dad gave him permission to withdraw $35 to buy a new video game. Tim's dad explained that the bank would charge a $5 fee for each withdrawal from the savings account and that each withdrawal and charge results in a debit to the account. Complete the table below by documenting each action Tim took with his bank account. How much money does Tim have remaining in his savings account?

Action	Integer	Balance
Opened Bank Account	0	$0
Deposited	150	$150
Deposited	25	$175
Withdrew	-35	$140
Charge	-5	$135

Scenario #2: The picture below shows three different people participating in activities at three different elevations. What do you think the word elevation means?



Represent each description with an integer:

a. The scuba diver is 30 feet below sea level. -30

b. The sailor is at sea level. 0

c. The hiker is 10,560 feet above sea level. 10560

12

Foundations of Algebra Unit I: Number Sense & Quantity Notes

Scenario #3:

a. An elevator is on the twentieth floor. It goes down 11 floors and then up 5 floors. What floor is the elevator on now?

subtract add

$20 - 11 = 9$ $9 + 5 = 14$ 14th floor

b. When Steve woke up, the temperature outside was 102°F. After a strong rain shower, the temperature dropped 15°. What is the current temperature?

subtract

$102 - 15 = 87$ 87°F

c. Josie has $47 left in her checking account. If she writes a check for $55, what will Josie's new account balance be?

subtract

$47 - 55 = -8$ $-8

d. Felix reported that the coldest day on record for his town was five times colder than yesterday's temperature, -4°F. What was the temperature of the coldest day on record in Felix's town?

$-4 \times 5 = -20$ -20°F

Practice

1. Write an integer to describe each situation:
   a. A company loses $345,000 in 2016. −345,000
   b. You earned $25 for dog sitting. +25
   c. Jacob owes his dad $5. −5
   d. The temperature at the sun's surface is 5,500°C. 5500
   e. The temperature outside is 4 degrees below zero. −4
   f. A football player lost 10 yards when tackled. −10
   g. Jose dove 25 feet into the water. −25
   h. 14,000 feet above sea level. 14000
   i. A debit of $40. −40

2. Describe a situation that can be modeled by the integer -15. Explain what zero represents in the situation.

3. Which statement is written correctly?
   a. The depth of the submarine is -800 feet below sea level. double negative
   b. The depth of the submarine is 800 feet below sea level.

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Foundations of Algebra Unit I: Number Sense & Quantity Notes

4. Write each word under the appropriate column, "Positive Number" or "Negative Number.

Gain	Loss	Deposit	Credit
Debit	Charge	Withdraw	Owe
Below Zero	Above Ground	Receive	Below Sea

Positive Number	Negative Number
gain above ground receive credit deposit	charge withdraw loss Debit below zero owe below sea

0:04:50

5. Can a temperature of -9 degrees be described as "Negative nine degrees below zero?" Why or why not?

No double negative

14

4 = 100

3 = 85

2 = 75

1 = 60

0 = 50

Practice Test

Aug 3-10:36 AM

Additional Practice

Jul 30-8:11 PM

Foundations of Algebra Unit 1: Number Sense & Quantity Practice

Day 3: Real World Applications of Integers **Name:** _____

Practice Assignment **0 25 50 75 100**

1. List the following temperatures in order from least to greatest:
   a. The temperature was 25 degrees 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 degree Fahrenheit.

2. Write an integer to represent each situation:
   a. _____ moving backwards 4 spaces on a game board
   b. _____ going up 3 flights in an elevator
   c. _____ a 5 point penalty in a football game
   d. _____ a $1 increase in your allowance

3. Think of the days of the week as integers. Let today be 0 and let the days in the past be negative and days in the future be positive.
   a. _____ If today is Tuesday, what integer stands for last Sunday?
   b. _____ If today is Wednesday, what integer stands for the coming Saturday?
   c. _____ If today is Friday, what integer stands for last Saturday?
   d. _____ If today is Monday, what integer stands for next Monday?

4. A small dog that can jump 5 feet off the ground chases a squirrel across the yard towards a tree. The squirrel runs 8 feet up the tree trunk, and then cautiously walks back down 5 feet to see how close the dog is. Seeing the dog closing in, the squirrel then scurries up 3 feet before the dog reaches the tree.

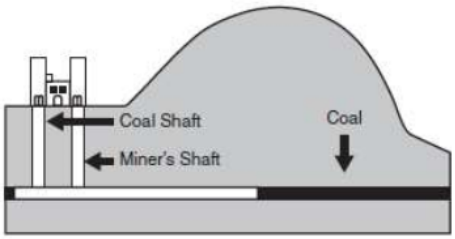
   a. Write a number sentence for the situation: b. Is the dog able to catch the squirrel? Explain.

5. A submarine was situated 450 feet below sea level. If it descends 300 feet, what is its new position? Express your answer as an integer and in real world terms.

6. In Buffalo, New York, the temperature was 14 degrees below zero. If the temperature dropped 7 degrees, what is the temperature now?

Foundations of Algebra Unit 1: Number Sense & Quantity Practice

7. Cody, Ty, and Brandon work in a shaft coal mine. The elevator in the mine shaft travels down at a rate of 150 feet per minute. Each day, Ty descends into the mine using a vertical elevator. He rides the elevator straight down into the mine for 4 minutes.



a. Write a number sentence for the situation:

b. How far did Ty travel down into the mine? Express your answer as an integer and in real world terms.

c. If Ty traveled down 1200 feet, how many minutes was he on the elevator? Write a number sentence and then state your answer.

8. Which of the following situations would result in a value of 0? **Explain why.**

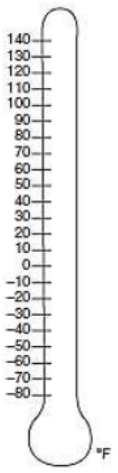
a. Sarah has $50 and pays $40 for two pairs of shoes.
b. Matt sells 22 out of his 24 candy bars.
c. Grayson earned $15 for his allowance and then has to pay his $15 class dues.
d. Kiki exercises for 30 minutes on Tuesday and then another 30 minutes on Thursday.

9. Use the thermometer at the right to answer the following questions:

a. In South Dakota, the temperate went from -33˚F to 50˚F. How many degrees did the temperature rise?

b. In Montana, the temperate went from 44˚F to -56˚F. How many degrees did the temperature fall?

c. In Idaho, the temperature went from 55˚F to 8˚F. How many degrees did the temperature fall?



Foundations of Algebra Unit 1: Number Sense & Quantity Practice

Day 2: Real World Applications of Integers **Name:** _____

Practice Assignment **0 25 50 75 100**

1. Match 1. List the following temperatures in order from least to greatest:

a. The temperature was 25 degrees below zero. −25

b. The pool temperature was 78 degrees Fahrenheit. 78

c. Water freezes at 32 degrees Fahrenheit. 32

d. The low temperature in December is -3 degrees Fahrenheit. −3

e. The temperature in the refrigerator was 34 degree Fahrenheit. 34

−25, -3, 32, 34, 78

2. Write an integer to represent each situation:

a. _____ moving backwards 4 spaces on a game board

b. _____ going up 3 flights in an elevator

c. _____ a 5 point penalty in a football game

d. _____ a $1 increase in your allowance

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

a. −2 If today is Tuesday, what integer stands for last Sunday?

b. 3 If today is Wednesday, what integer stands for the coming Saturday?

c. −6 If today is Friday, what integer stands for last Saturday?

d. 7 If today is Monday, what integer stands for next Monday?

4. A small dog that can jump 5 feet off the ground chases a squirrel across the yard towards a tree. The squirrel runs 8 feet up the tree trunk, and then cautiously walks back down 5 feet to see how close the dog is. Seeing the dog closing in, the squirrel then scurries up 3 feet before the dog reaches the tree.

a. Write a number sentence for the situation: b. Is the dog able to catch the squirrel? Explain.

5. A submarine was situated 450 feet below sea level. If it descends 300 feet, what is its new position? Express your answer as an integer and in real world terms.

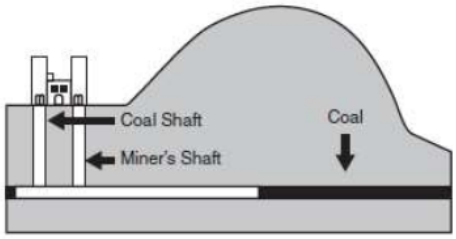
−750 or 750 ft below sea level

6. In Buffalo, New York, the temperature was 14 degrees below zero. If the temperature dropped 7 degrees, what is the temperature now?

Foundations of Algebra Unit 1: Number Sense & Quantity Practice

7. Cody, Ty, and Brandon work in a shaft coal mine. The elevator in the mine shaft travels down at a rate of 150 feet per minute. Each day, Ty descends into the mine using a vertical elevator. He rides the elevator straight down into the mine for 4 minutes.

150
x 4
600ft



a. Write a number sentence for the situation:

b. How far did Ty travel down into the mine? Express your answer as an integer and in real world terms.

600ft below -600

c. If Ty traveled down 1200 feet, how many minutes was he on the elevator? Write a number sentence and then state your answer.

8min

8. Which of the following situations would result in a value of 0? **Explain why.**

a. Sarah has $50 and pays $40 for two pairs of shoes.
b. Matt sells 22 out of his 24 candy bars.
c. Grayson earned $15 for his allowance and then has to pay his $15 class dues.
d. Kiki exercises for 30 minutes on Tuesday and then another 30 minutes on Thursday.

9. Multiply or divide the following expressions:

a. -4 x 5 -20

b. 3 x 3 9

c. -5 x -2 10

d. 7 x -3 -21

e. $\frac{-35}{5}$ -7

f. $\frac{30}{5}$ 6

g. $\frac{-24}{-3}$ 8

h. $\frac{81}{-9}$ -9