

## Day 3: Real World Applications of Integers

Name: Keef

## 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.  $-25^{\circ}$   
 b. The pool temperature was 78 degrees Fahrenheit.  $78^{\circ}$   
 c. Water freezes at 32 degrees Fahrenheit.  $32^{\circ}$   
 d. The low temperature in December is -3 degrees Fahrenheit.  $-3^{\circ}$   
 e. The temperature in the refrigerator was 34 degree Fahrenheit.  $34^{\circ}$

 $-25^{\circ}, -3^{\circ}, 32^{\circ}, 34^{\circ}, 78^{\circ}$ 

2. Write an integer to represent each situation:

- a. -4 moving backwards 4 spaces on a game board  
 b. 3 going up 3 flights in an elevator  
 c. -5 a 5 point penalty in a football game  
 d. 1 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:

$$8 - 5 + 3 = 6$$

b. Is the dog able to catch the squirrel? Explain.

No because the squirrel is 6 ft up the tree and the dog can only jump 5 ft.

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.

$$-450 + -300 = -750$$

↳ down

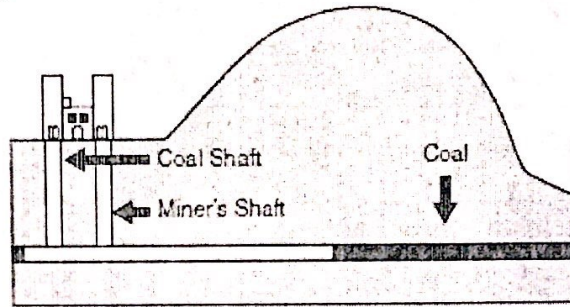
750 ft below sea level

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

$$-14 + -7 = -21^{\circ}F \text{ or } 21^{\circ} \text{ below } 0.$$

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.

- 1 min = -150 ft
- 2 min = -300 ft
- 3 min = -450 ft
- 4 min = -600 ft



a. Write a number sentence for the situation:

$$-150 \text{ ft} \times 4 \text{ min}$$

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

-600 ft in 4 minutes  
600 ft below the ground

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

If 4 minutes = -600 ft, then  $8 \text{ minutes} = 1200 \text{ ft}$

-OR-

$$\frac{-1200 \text{ ft}}{-150 \text{ ft}} = 8 \text{ minutes}$$

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.

Grayson earned \$15 and then spent it on class dues

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

a. In South Dakota, the temperature went from  $-33^{\circ}\text{F}$  to  $50^{\circ}\text{F}$ . How many degrees did the temperature rise?

$$-33^{\circ} \text{ to } 50^{\circ} \rightarrow -33^{\circ} \text{ to } 0^{\circ} = 33^{\circ}$$

$$0^{\circ} \text{ to } 50^{\circ} = 50^{\circ}$$

rose  $83^{\circ}$  total

b. In Montana, the temperature went from  $44^{\circ}\text{F}$  to  $-56^{\circ}\text{F}$ . How many degrees did the temperature fall?

$$44^{\circ} \text{ to } -56^{\circ} \rightarrow 44^{\circ} \text{ to } 0^{\circ} = -44^{\circ}$$

$$0^{\circ} \text{ to } -56^{\circ} = -56^{\circ}$$

dropped  $-100^{\circ}$  total

c. In Idaho, the temperature went from  $55^{\circ}\text{F}$  to  $8^{\circ}\text{F}$ . How many degrees did the temperature fall?

$$55^{\circ} \text{ to } 8^{\circ} \rightarrow \begin{array}{r} 45 \\ -8 \\ \hline 47 \end{array}$$

dropped  $47^{\circ}$  total

