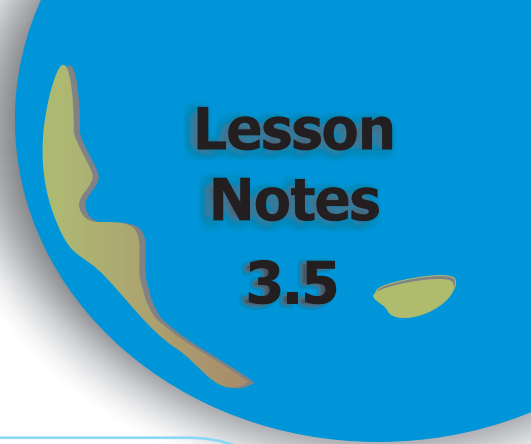


NAME _____

Module 3 Integers
Lesson 5 Solving Problems with Integers



Lesson Notes

3.5

Lesson Objective

- Read, write, compare, and solve problems involving integers with or without appropriate technology.

Subtopic 1 Solving Problems with Integers 1 (Math Camp Swimming Pool)

Math Camp Swimming Pool

given amount + change amount

change amount = rate × time

- 1** Find how many gallons were in the swimming pool six hours ago if there are currently 21 gallons and the pool is filled at a rate of two gallons per hour.

$$21 + (+2)(-6)$$

9 gallons in the pool

- 2** Find how many gallons of water were in a swimming pool six hours ago if there are currently seven gallons of water and the pool is drained at a rate of three gallons per hour.

$$7 + (-3)(-6)$$

25 gallons in the pool

- 3** The pool holds 12,000 gallons of water. Two thousand gallons can be drained every hour. Find out how long it will take to drain the pool.

$$12,000 + (-2000)(6)$$

0 gallons left after 6 hours

- 4** The pool can hold 12,000 gallons of water and is currently empty. Every hour, 1200 gallons are pumped into the pool. How long will it take to refill the pool?

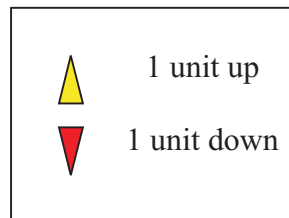
$$0 + (1200)(10)$$

12,000 gallons after 10 hours

Subtopic 2**Solving Problems with Integers 2 (Zeo's Alienoon)****Zeo's Alienoon**

Zeo's alienoon (like a hot-air balloon) is tied somewhere above ground to a platform labeled zero.

- Distances above the platform are given as positive integers.
- Distances below the platform are given as negative integers.
- The alienoon goes up and down based on how many triangle fuel cells it has.
positive fuel cells (yellow—pointing up **+1**)
negative fuel cells (red—pointing down **-1**)

**5**

The alienoon is at zero and is descending at a rate of three units per hour. Where was it four hours ago?

$$(-3)(-4) = 12 \text{ units above the platform}$$

6

The alienoon starts at zero and descends at a rate of three units per hour for three hours; then it ascends two units per hour for two hours. Where is it?

$$(3)(-3) + (2)(2) = 5 \text{ units below the platform}$$