

Pre-Algebra

Essential Question: How can we use integer expressions to solve problems?

Do Now: The sum of -5 and another integer is a positive integer.

- a) What can you conclude about the sign of the other integer?

- b) What can you conclude about the value of the other integer?

Problem Solving with Integers



- 1) Write an integer expression that describes the situation.
- 2) Evaluate the expression.
- 3) Write a sentence to answer the question.

- 1) A seal is swimming in the ocean 5 feet below sea level. It dives down 12 feet to catch some fish. Then the seal swims 8 feet up towards the surface. What is the seal's final elevation relative to sea level?

- 2) Your checking account is overdrawn by \$50. You deposit \$200 into the account. The following day you use your debit card to purchase an item totaling \$35. What is the current balance in your account?

- 3) The temperature at 6 pm was 8°F . Three hours later the temperature was -11°F . What was the change in temperature?

Think about this first: *How would you find the change in temperature if the starting temperature was 15°F and three hours later the temperature was 20°F ?*

- 4) A scientist conducts an experiment in which he records the temperature of a gas that he has heated. The table below shows the initial temperature and the final temperature of the gas.

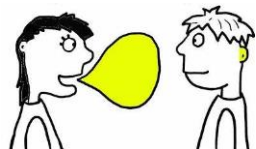
Initial Temperature	Final Temperature
-21°C	-8°C

- a) Write a difference of integers to find the overall temperature change.
- b) Suppose the scientist conducted an experiment in which he cooled the gas. Will the change in temperature be positive or negative? Explain.
- 5) Temperatures in the Gobi Desert reach -40°F in the winter and 90°F in the summer. Find the change in temperature from winter to summer.
- 6) A beluga whale is diving downward at a speed of 2 meters per second from sea level. What integer represents the whale's position after 45 seconds? Write and evaluate an expression of integers to represent this situation.
- 7) The enrollment at Roslyn Middle School dropped by 128 students over a 4-year period. What is the mean annual drop in enrollment? Write and evaluate an expression of integers to represent this situation. *Helpful Hint: Mean = Average*

When problem solving, write an expression that describes the situation. Evaluate and express your final answer in the form of a sentence. When finding change, subtract the _____ value from the _____ value.

Change = _____ - _____

Let's Partner Up



Write and evaluate an integer expression for each situation below. Write a sentence to answer the question.

- 8) Which continent has the greater range of elevations? *Hint: Range = High - Low*

	North America	Africa
Highest Elevation	6198 m	5895 m
Lowest Elevation	-86 m	-155 m

- 9) The current temperature is 17°F . If the current temperature is predicted to drop 5°F per hour due to an incoming cold front, determine the temperature in 6 hours.
- 10) An alligator population in a nature preserve in the Everglades decreases by 60 alligators over 5 years. What is the mean yearly change in the alligator population?

HW

Write and evaluate an integer expression for each situation below. Write a sentence to answer the question.

- 1) A submarine was situated 800 feet below sea level. If it ascends 250 feet, what is its new position?

- 2) The table below shows the income and expenses for a school carnival. The school's goal was to raise \$1100. Did the school reach its goal? Explain.

Games	Concessions	Donations	Flyers	Decorations
\$650	\$530	\$52	-\$28	-\$75

- 3) The average temperature recorded at the South Pole is -45°F . The average temperature recorded at the Equator is 92°F . Based on these temperatures, how much warmer is it at the Equator than at the South Pole?
- 4) The height of the tide at the Bay of Fundy in New Brunswick decreases 36 feet in 6 hours. What is the mean hourly change in height?