

Unit 4: Geometry



SBAC alignment for *Unit 4: Geometry Activity 1*

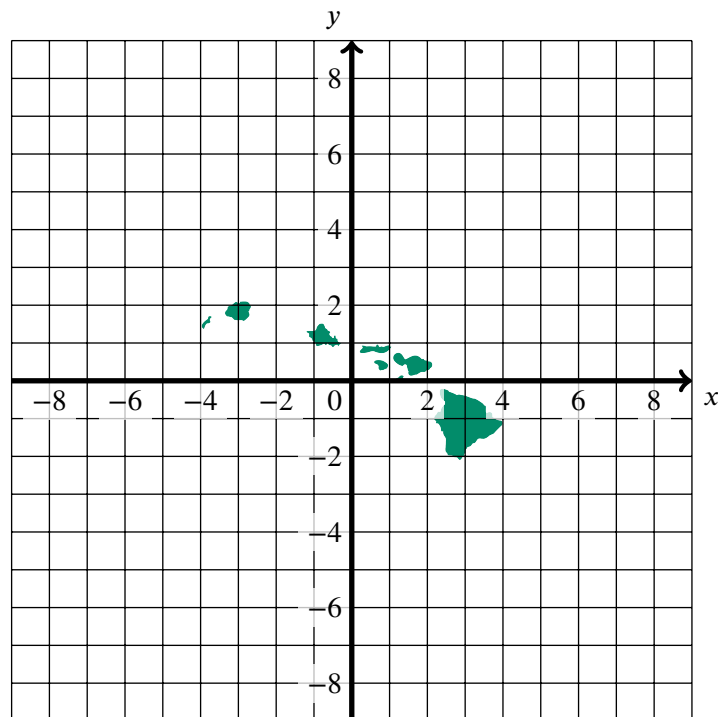
Claim(s)	Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 D: Apply and extend previous understandings of numbers to the system of rational numbers.
Content Domain:	The Number System
Standard(s):	6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
DOK:	2

Unit 4: Geometry Activity 1

There are several tropical storms approaching the Hawaiian Islands.

1. Tropical Storm Hema is at point W at $(-3, -6)$ and Tropical Storm Hikina is at point I at $(7, 0)$. A week later, Tropical Storm Hema has moved to the point N , which is a reflection of the point W across the x -axis. At that time, Tropical Storm Hikina has moved to the point D , which is a reflection of the point I across the y -axis.

Plot and label the points W , I , N , and D on the coordinate plane.



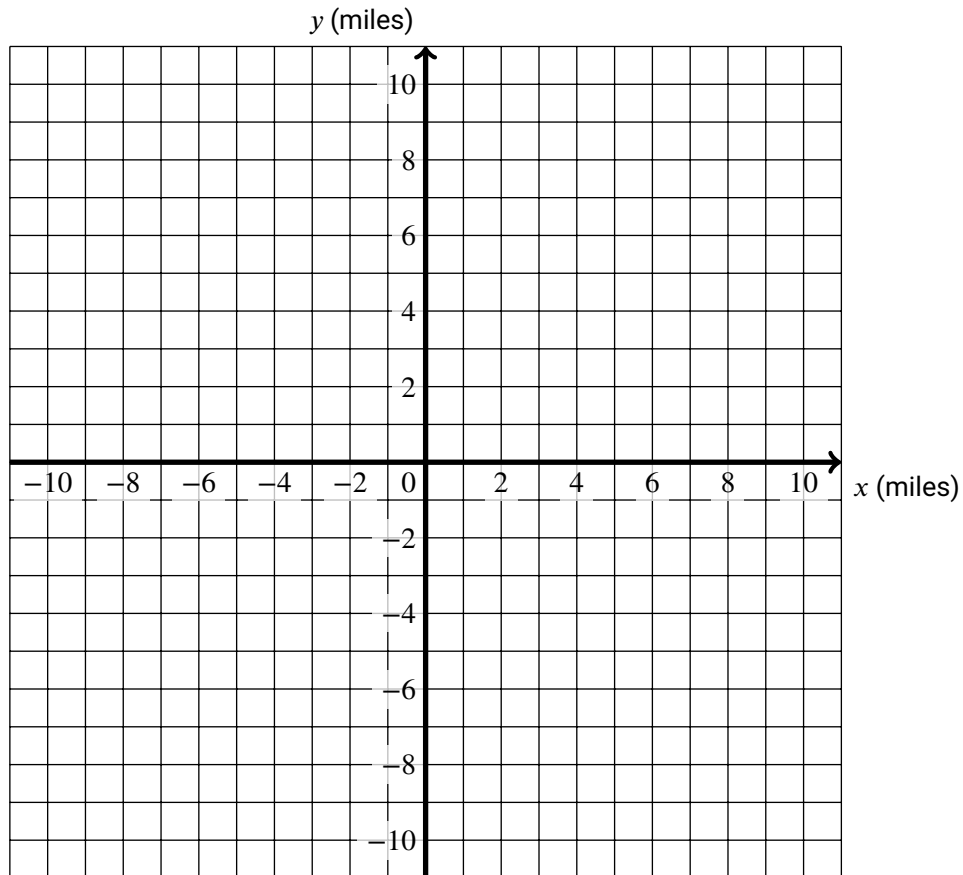
2. There is another storm at the point $(5, -2)$. A week later, its position has reflected across the y -axis. Which quadrant did the storm move to?
 - (a) I
 - (b) II
 - (c) III
 - (d) IV

SBAC alignment for *Unit 4: Geometry Activity 2*

Claim(s)	Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 D: Apply and extend previous understandings of numbers to the system of rational numbers.
Content Domain:	The Number System
Standard(s):	6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
DOK:	1

Unit 4: Geometry Activity 2

A map of a valley is being drawn in the coordinate plane below where the units are measured in miles. The lowest point in this valley is at the coordinate $(1, 2)$. A major rain storm is coming and everything within 7 miles of the lowest point will be underwater. Plot four (4) unique points on the coordinate plane that are each 7 miles from the lowest point. Each point must contain coordinates with integer values.

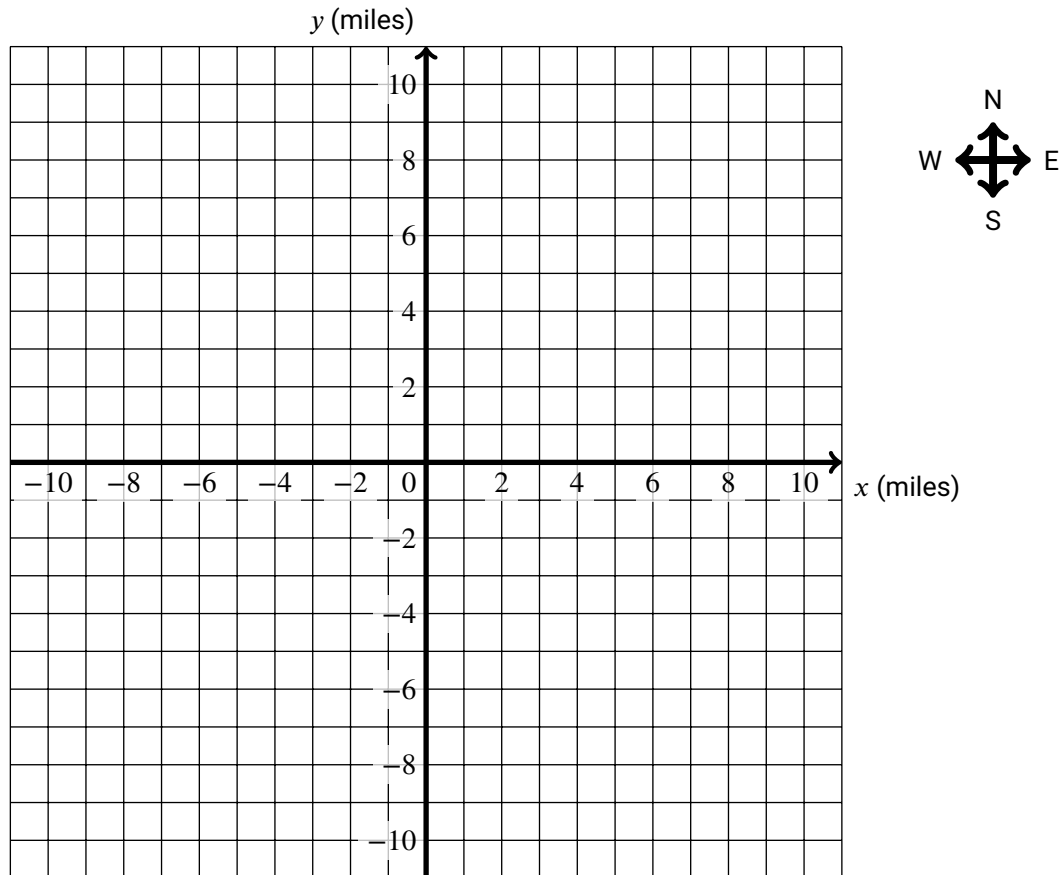


SBAC alignment for *Unit 4: Geometry Activity 3*

Claim(s)	Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 D: Apply and extend previous understandings of numbers to the system of rational numbers.
Content Domain:	The Number System
Standard(s):	6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
DOK:	2

Unit 4: Geometry Activity 3

You are at a birthday party located at the coordinates $(-2, -4)$ in the map below. It is not raining where you are, but you can hear thunder in the distance. Your friend called you and said that he will be a little bit late to the party. There is a flash flood warning in his ahupua'a which is located 5 miles to the east and 3 miles to the north of your location. Plot your location and the location of the friend who called you.



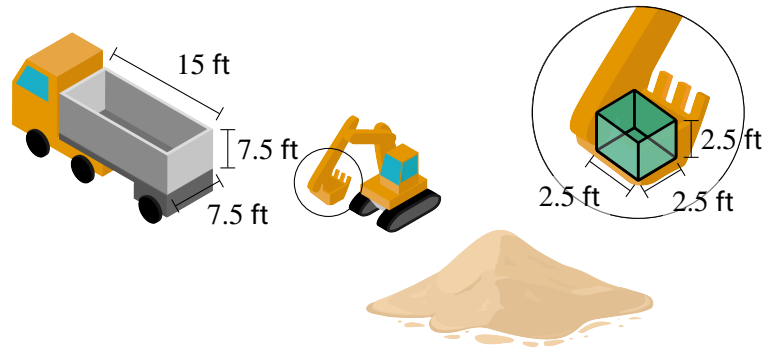
SBAC alignment for *Unit 4: Geometry Activity 4*

Claim(s)	<p>Claim 3: Communicating Reasoning (primary claim) Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.</p> <p>Claim 1: Concepts and Procedures (secondary claim) Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p>
Assessment Target(s):	<p>3 F: Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</p> <p>1 H: Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p>1 C: Compute fluently with multi-digit numbers and find common factors and multiples.</p>
Content Domain:	Geometry
Standard(s):	<p>6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l w h$ and $V = b h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</p> <p>6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>
DOK:	3

Unit 4: Geometry Activity 4

The beaches of Hawai'i are constantly being eroded by the wind and the rain. From residential homes to the beaches of Waikiki, large amounts of sand and shoreline are lost to the ocean every year. One way that the state deals with this loss of sand is by pulling up sand from offshore to fill back the disappearing beaches. Sand is pulled up onto ships, then large excavators are used to move the sand onto trucks, which bring the sand to the beaches where it is needed.

The transporting truck has a container that is shaped like a rectangular prism. This container is 7.5 feet (ft) tall, 7.5 ft wide, and 15 ft long. The inside of the excavator bucket is shaped like a cube, measuring 2.5 ft on each side.



1. What is the volume of sand, in cubic feet, that can fit inside of the excavator bucket?

2. How many scoops of the excavator bucket are needed to fill the container on the transport truck with sand? Show your work and explain how you determined your answer.

