

Name \_\_\_\_\_ Date \_\_\_\_\_

## **MATH EXTENSION—PROBLEM OF THE WEEK** .....

### Investigation 1: Soils and Weathering

Andy, Bette, Cate, Dustin, Erik, and Franco are rock collectors. Each collector has chosen some rocks from his or her collection to trade. Each collector is going to trade with every other collector. How many different pairs of collectors will trade rocks?

# MATH EXTENSION—PROBLEM OF THE WEEK

## Investigation 2: Landforms

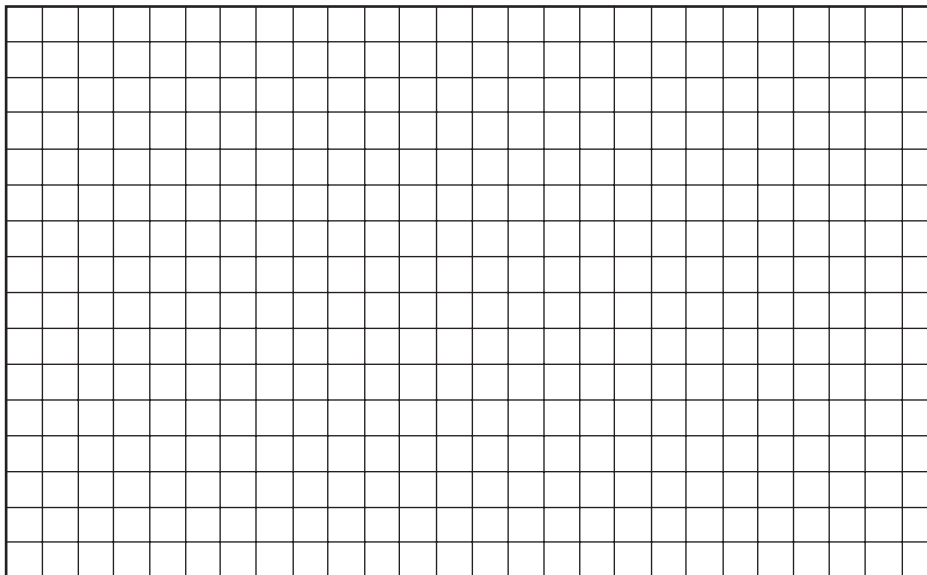
A class investigated how the slope of a stream table affected deposition. Each group tested the same four slopes by elevating the end of the tray 2, 3, 4, and 5 centimeters (cm). They measured the length of the alluvial fan after each test. The results are in the data table.

Calculate the average length of the alluvial fans formed. Round your answers to the nearest 0.1 cm.

Slope height	Group 1	Group 2	Group 3	Group 4
2 cm high	4.4 cm	4.8 cm	4.2 cm	4.6 cm
3 cm high	5.2 cm	5.6 cm	5.4 cm	5.2 cm
4 cm high	6.3 cm	6.4 cm	6.1 cm	6.1 cm
5 cm high	7.4 cm	7.6 cm	7.3 cm	7.0 cm

Prepare a graph of the average alluvial fan lengths.

Predict the length of the alluvial fan if the tray were elevated 1 cm. \_\_\_\_\_



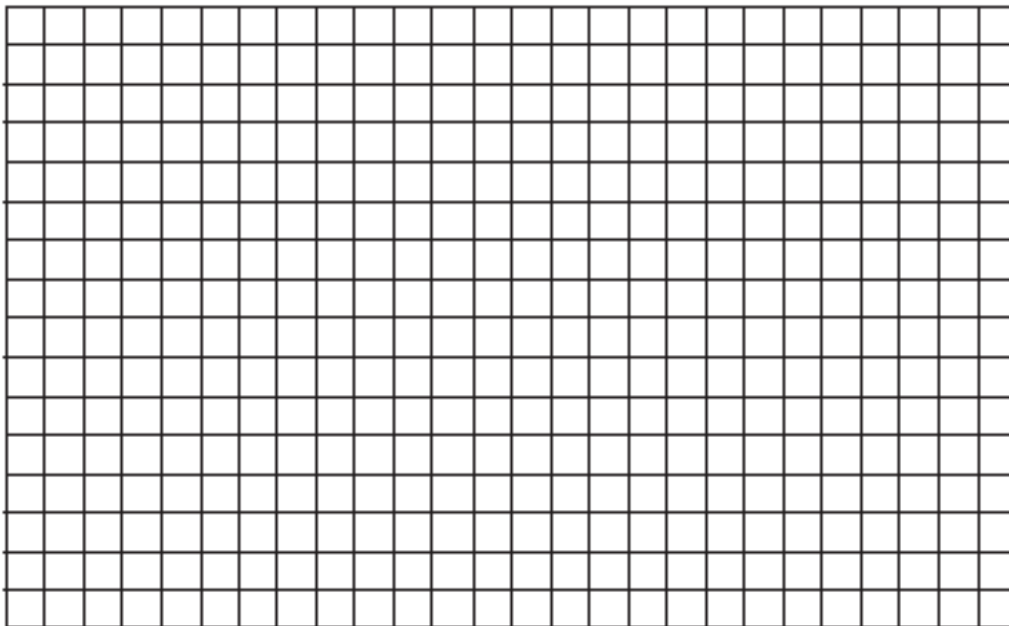
# MATH EXTENSION—PROBLEM OF THE WEEK

## Investigation 3: Mapping Earth’s Surface

Keisha’s class was planning to hike on a trail in the local state park. Her teacher asked them to figure out how steep the trail would be along the way. They looked at a topographic map of the park and figured out the distances between stops and the elevation of each stop. They recorded their data on the table you see here.

Stop No.	Distance (km)	Elevation (m)
Start	0.0	492
1	1.0	500
2	1.8	485
3	2.5	472
4	3.2	508
5	4.1	510
6	5.0	521
7	5.6	518
8	6.3	530

Use the data in the table to draw a profile of the trail.



Between which two stops is the trail the steepest?

Between which two stops is the trail the least steep?

Use the back of this sheet to explain how you came up with these answers.

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### Investigation 4: Natural Resources

Two students were playing the game Rock Paper Scissors (rock crushes scissors, scissors cut paper, paper covers rock). They had agreed that at the end of each game, the loser would give the winner a rock from his or her collection.

After playing many games, Student A had won three games, and Student B had won the rest. When they stopped playing, Student B had three more rocks than she had when they began.

What is the fewest number of games of Rock Paper Scissors they could have played?