Date _____

Topic: Field Maps and Isolines
Aim: How is gradient calculated?

Recall	Notes
1. What is the definition of gradient?	Gradient is the change in field value in a given distance.
	On a contour map: gradient = slope
	gentle or gradual slopes – land is relatively flat
2. What is the gradient formula?	Gradient = $\dfrac{\text{Change in Field Value}}{\text{Distance}}$ ← difference in elevation between 2 given points ← distance measured with map scale

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SAMPLE PROBLEM #1

A road in New York State begins at a location 200 meters above sea level and runs down into a valley that is 40 meters above sea level. The length of the road is 20 kilometers. What is the gradient of the road? (Show all work.)
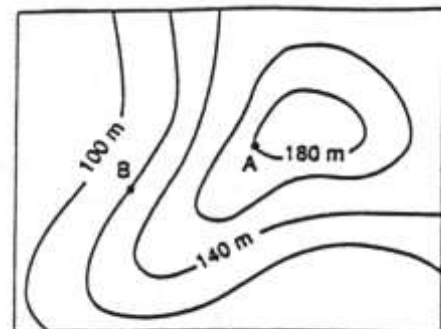
$$\text{Gradient} = \frac{\text{Change in Field Value}}{\text{Distance}} = \frac{(200m - 40m)}{20\ km} = \textbf{8 m/km}$$

SAMPLE PROBLEM #2

What is the gradient between points A and B?
(Show all work.)

$$\text{Gradient} = \frac{\text{Change in Field Value}}{\text{Distance}}$$

$$= \frac{(180m - 120m)}{30\ km} = \textbf{2 m/km}$$

SCALE (kilometers) 0 10 20 30