

Warmup: Grade (part the second!)

OK! Last class, we had a bash at calculating the grade of the scree field on Broken Top. Here's the problem we attacked!

The summit of Broken Top is at about **9177** feet above sea level, and the scree field Max is running on starts the summit and ends at an elevation of about **7580** feet above sea level. Over that distance, it has a run on about **0.6** miles. What's the grade of that scree slope?

And here's what we did!

$$\begin{aligned} \text{Grade of that "Road"} &= \frac{\text{Length of Road's Rise}}{\text{Length of Road's Run}} \\ &= \frac{9177 \text{ feet} - 7580 \text{ feet}}{0.6 * 5280 \text{ feet}} \\ &= \frac{1597 \text{ feet}}{3168 \text{ feet}} \\ &\approx 50\% \end{aligned}$$

Nice! And steep! But here's the deal – it's actually even steeper than *that*!

Look back up at the paragraph above where I described the distances on the scree field. I pulled these numbers from an app called Strava, that uses GPS to track my travels along the ground (or sometimes, in the water). It keeps track of where I walked, along the paths I walked, and figures out the elevations and distances from those tracks.

But here's the catch! It's pretty clear that the *rise* on that scree field is 1597 feet; we called the 3168 the *run*, but it's actually...

1. **(1 point)** ...the *what*?
2. **(3 points) (w)** Recalculate the grade using this new information! You'll have to use Pythagorean Theorem to figure out what the run actually *is*! Feel free to use an online calculator to figure it out, and then supply screenshots of what you did as work!
3. **(1 point)** Why does Strava give you the "road" and not the "run" when it gives you "distance traveled"?