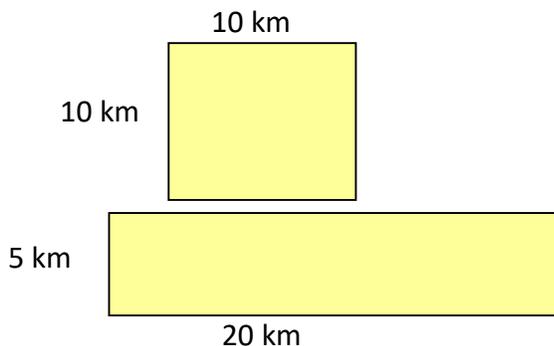


Activity 4: Possible Locations Worksheet

We call engineering projects “open-ended” design projects because every problem has more than one possible solution! For example, civil engineers in your community are continuously designing new highways or expanded highways through and around your city to help people travel. Many possible routes could be chosen to move people through the city—that means that *many possible solutions exist!* The engineers consider many possible routes and then pick the one that they consider to be the *best one* based on many factors. In this case, factors (unique requirements, limitations, constraints) might include keeping costs low, trying not to disrupt neighborhoods, and trying to lower noise.

Your engineering team now has some important information and it is time to suggest some possible cavern locations! Remember that many possible location solutions exist; your job is to figure out which locations make the most sense for what you are trying to accomplish. You will need the two maps to complete this activity.

1. Many rectangle shapes have the same area. These two shapes have the same area in km.



What is the area of each shape? _____ km²

2. You have already determined the area needed for your cavern in square kilometers. What 2 numbers can you multiply together to equal your cavern size? How many combinations can you come up with?
3. Using the General Map scale, cut a piece of paper to the cavern size required to house all of Alabraska’s people. If your team is proposing more than one cavern, cut more than one piece of paper. Refer to Question 2 to come up with cavern shape ideas.
- a. _____ x _____ = _____ km²
(cavern size)
- b. _____ x _____ = _____ km²
- c. _____ x _____ = _____ km²

4. Using the cutout paper piece(s) of the cavern size, the General Map and the Geology Map, identify up to 3 possible cavern locations. Use map grid locations to identify the possible locations in the table below. Also provide reasons for why you selected each possible location. *Hint: Review Activity 1: What’s the Problem?* answers. Also consider elevation, and the location of airports, cities, rivers, highways, railroads, earthquake fault lines and other features may influence your decisions.

Location	Explanation: Why?
1	
2	
3	