

Chapter 7: Topographic Maps

Adapted by Joyce M. McBeth, Sean W. Lacey, & Tim C. Prokopiuk (2018) University of Saskatchewan from Deline B, Harris R, & Tefend K. (2015) "Laboratory Manual for Introductory Geology". First Edition. Chapter 3 "Topographic Maps" by Karen Tefend and Bradley Deline, CC BY-SA 4.0. Last edited: 28 Dec 2019

The 7-E1 exercises are practice exercises to complete BEFORE the topographic maps lab.

7-E1 PRACTICE QUESTIONS

The questions in section 7-E1 are for practice (they will not be graded). Answers to these questions are provided at the end of the practice questions section (p. 7-E1|4). We encourage you to complete these practice questions before you come to lab.

Please refer to British Columbia Topographic Map [094A018](#) (thumbnail version shown in Figure 7-E1). *Hint: the information in the map area legend (on the right-hand side of the map) will be very helpful in answering these questions.*

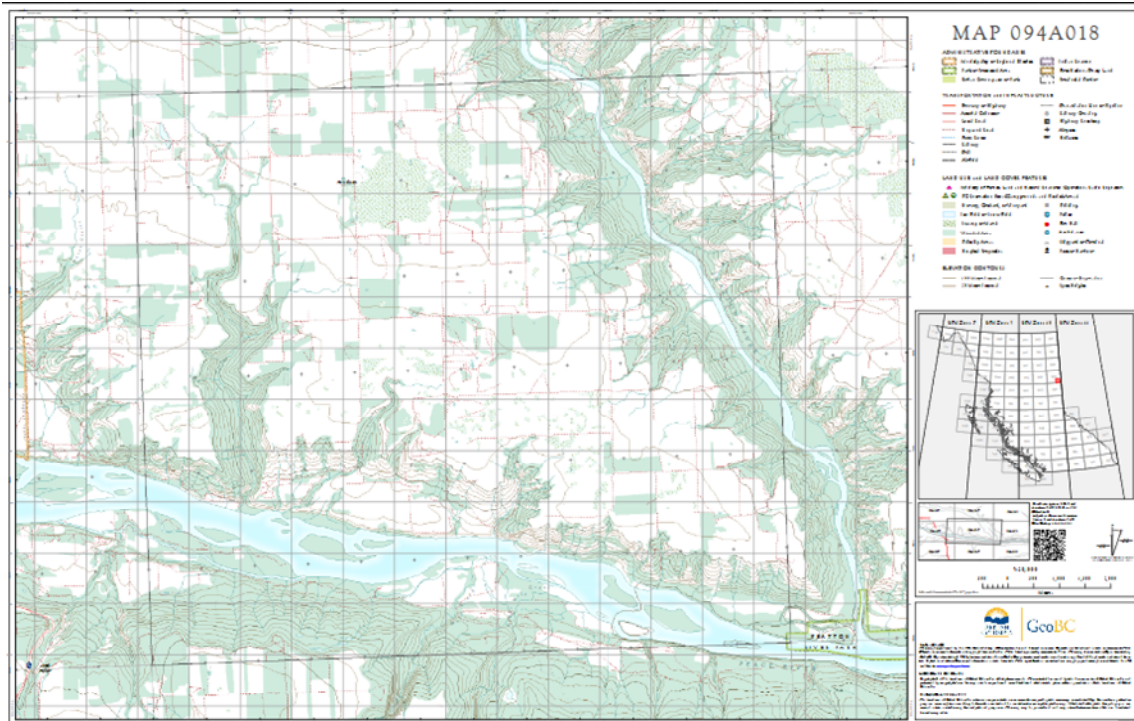


Figure 7-E1 | Two Rivers Topographic Map. Source: British Columbia Topographic Map 094A018, Province of British Columbia © 2016 all rights reserved.

1. Is the map area located in northeast (NE), northwest (NW), southeast (SE), or southwest (SW) B.C.?

2. What do the green areas on the map represent?

3. What are the contour intervals of the two types of contour lines used on this map?

4. Note the location of the two rivers running through the map area. What are their names?

5. What happens to the contour lines as you move out in the first 1000 m from the rivers? (Hint: Does the distance between the contour lines change?) How does this pattern differ when you move further from the rivers (such as the NW corner of the map)? What does this tell you about the topography in this area?

6. A fractional scale of 1:20,000 means that 1 centimetre (cm) = metres.

7. A fractional scale of 1:20,000 means that 1 metre (m) = kilometres (km).

8a. The scale of the map will be different if you print it on a larger piece of paper than if you print it on a smaller piece of paper. What size of paper should you print the map on for the map to be at 1:20,000 scale? *Hint: this is specified in the map legend.*

8b. Please comment on which scale (graphical scale or fractional ratio scale) you find easier to work with and why.

For Questions 9 through 13, refer to Figure 7-E2 below, which shows a hill, an intermittent stream, and two index contours (darkened contour lines). Assume the contour interval for this map is 5 m, and the index contour that is crossing the stream has an elevation of 70 m. Review overview section 7.3 prior to doing this exercise.



Figure 7-E2 | Portion of a topographic map showing contour intervals. Source: Sean Lacey (2018) CC BY 4.0, after Tefend and Deline (2015), map originally from USGS Public Domain

70 meters

9. Which way is the stream flowing, to the north or to the south?

10. What is the elevation of the highest contour in the map area?

11. Calculate the relief of this map. *Hint: it may be helpful to review the “Contour Lines” section in this chapter for instructions on calculating relief.*

12. Calculate the gradient of the stream between the highest and lowest contour lines that cross the stream. These two contour lines are 2 km apart.

13. Which side of the hill shown in Figure 7-E2 is slightly steeper: the west or east side?

ANSWERS TO PRACTICE LAB EXERCISES IN SECTION 7-E1

1. NE
2. wooded areas
3. 100 m, 20 m.
4. Beatton River, Peace River.
5. contour lines are closer together near the river because the slope is steep, very far apart in the NW corner (flatter area).
6. 200 m
7. 20 km
8. 28" x 44"
9. south
10. 95 m (this is the index contour at the top of the hill)
11. $95\text{ m} - 65\text{ m} = 30\text{ m}$
12. $(80\text{ m} - 65\text{ m})/2\text{ km} = 7.5\text{ m/km}$
13. East