

Maps and Quads used during this exam are keyed as follows:

HM = Montana Highway Map

BR = Broadus Quad

MC = Monday Creek Quad

EP = Epsie Quad

Escape from Broadus

“This is Patty Panic of KUBK Radio reporting live from downtown Broadus. Late last evening as the owners and employees of the Great Western Circus lay asleep at their campsite near the small roadside park South of town [Broadus quad, Sector 6], their animals executed an incredible escape. Apparently the trained chimpanzee, billed as one of the most intelligent of its species, managed to open the latch to his cage. Before escaping with his simian companions, the chimp managed to release all the other circus animals as well. The ring-master discovered the empty cages shortly after 7:00 a.m. this morning. If you should happen to spot any of these unusual animals in your vicinity, do not ... I repeat ... do not attempt a capture. Instead, call our emergency hotline, 654-HELP, stating the location and type of creatures spotted. Stay tuned throughout the day for further developments. We now return to our regularly scheduled program ...”

The animal trainer reported that he had first observed listlessness among the elephants during the steep, steady increase in grade of Highway 212 approximately six miles Southeast of Broadus.

1. [MC] Is Highway 212 classified as an [a. Interstate, b. U.S., or c. State] route?
2. [MC] Is Highway 212 classified as a [a. primary highway, b. secondary highway, c. light-duty road or d. unimproved road]?
3. [MC] Calculate the rise in elevation between the two benchmarks labeled BM 3095 and BM 3264 lying alongside Route 212 on the Monday Creek quad.
4. [MC] Determine the distance, in feet, between these two benchmarks. [Measure directly from benchmark to benchmark.]
5. [MC] Calculate the gradient between these two benchmarks in feet per thousand feet.

“This is Patty Panic from the KUBK Newscenter with a live update. The first circus escapee were captured while attempting to slither toward the muddy waters of Swede Creek located directly behind the circus campsite. A shrill, piercing shriek led the trapeze artist to the anaconda, billed as the largest South American snake in captivity. Fortunately the hysterical tourist had managed to escape danger, but his shriek nearly scared the anaconda out of a year’s growth of skin’!”

6. [BR] Is Swede Creek a [a. perennial or b. intermittent] stream?
7. [BR] What is Swede Creek’s general direction of flow?
8. [BR] Swede Creek is a tributary of a much larger river. What is the name of that river?

“This is Patty Panic from the KUBK Newscenter with yet another live update. Just ten short minutes ago, two frantic fishermen reported spotting what they originally took for two old logs floating downstream but soon discovered to be two ferocious-appearing crocodiles lazily swimming, side-by-side, down the Powder River directly East of Preston Buttes.”

9. [BR] In which sector were the crocodiles spotted just prior to departing the Broadus quad?
10. [BR/MC] What sector of the Monday Creek quad were the crocodiles entering as they parted the Broadus quad?
11. [BR] Is the Powder River generally [**a.** less than or **b.** greater than] 40 feet in width?
12. [MC] Into which quad does the Powder River flow upon departing the Monday Creek quad?
13. [MC] State the coordinates of the graticule tick mark located approximately one-half mile South of the point at which the Little Powder River flows into the Powder River [Sector 2 or N]. [You must state latitude before longitude and include directional abbreviations.]

“This is Patty Panic once again interrupting our regularly scheduled program. It appears as if the attention of the entire nation has been drawn toward the fate of the venturesome creatures that early this morning escaped from the Great Western Circus. Inquiries have been pouring in from journalists, concerned relatives, and animal lovers. Please do not call the KUBK Newscenter for additional information as this will only add to the confusion. You may find it helpful to track the locations mentioned during our live broadcasts on a Montana State Highway Map. We thank you for your cooperation.”

14. [HM] How many U.S. states border Montana?
15. [HM] In what county is the town of Broadus located?
16. [HM] If every resident of Broadus had tuned in to this news-breaking story, how many listeners would have heard the special broadcasts?
17. [HM] How does Montana rank in population in comparison to all fifty states?
18. [HM] What type of governmental center is the town of Broadus?

“This is Patty Panic of the KUBK Newsroom. Several albino cougars have reportedly been spotted prowling the rugged terrain within the confines of the Epsie quad! These cougars, according to the owner of the Great Western Circus, are the only such albinos known to exist in the world. Awe-stricken hunters, campers and hikers, believing the area to be haunted, have fled the area in droves! Only two hikers, too flabbergasted to provide anything but the vaguest information, hesitated just long enough to share clues as to the present whereabouts of these rare animals. Stay tuned throughout the day for further details. We now return to our regularly scheduled program ...”

19. [EP] One of the cougars was seen springing up M^CAllister Butte. What is the elevation at the summit of this feature located in Sector 5 of the Epsie quad?
20. [EP] Another cougar was spotted midway between the highest points of Rattlesnake Butte, Sector 6. At what azimuth is this point of Rattlesnake Butte as viewed from M^CAllister Butte?
21. [EP] What is the distance to the nearest tenth of a mile between these points?
22. [EP] In addition to the road, what man-made structure is located approximately 4700' at an azimuth of 247° as viewed from the highest point of M^CAllister Butte?
23. [EP] What is the value of the index contour completely surrounding Rattlesnake Butte in Sector 6?

“This is KUBK’s Patty Panic reporting live from the County Search and Rescue Helicopter presently circling Southwest of Castle Rock within the area of the Epsie quad where several frolicsome chimpanzees have been swinging from tree to tree skillfully avoiding several daring attempts to capture them. Why these chimpanzees passed over the wooded areas adjacent to Powder Creek remains a mystery.”

24. [EP] List **two** of the three creeks that enter or meander through Sector 7 of the Epsie quad.
25. [EP] Would [**a.** jeeps, **b.** vans or **c.** automobiles] be most ideal to assist in capturing the escaped monkeys from the wooded terrain found within Sector 7?
26. [EP] How do the drill hole symbols, located near the center of Sector 6, differ from those of water wells located near the SW tic mark?

“This is Patty Panic reporting live from the small sandpit Southwest of Broadus Airport. One would think that the elephants, considering their size, would have been among the first to be found and captured. This may well have been true had it not been for several small children enjoying watching these large pachyderms playfully siphoning water from the small pool and spraying it onto each other rather than reporting their location. Incidentally, the anaconda, crocodiles and albino cougars have already been captured and are presently on their way back to the Great Western Circus.”

27. [BR] What is the length, to the nearest hundred feet, of Broadus Airport’s single runway?
28. [BR] How are ten-foot contours represented on the Broadus quad? [Search both banks of the Powder River near the point where it flows into the Broadus quad.]
29. [BR] What man-made features, directly West of the sandpit in Sector 5, are shown as fine red dashed lines?
30. [BR] What dynamic surface feature is responsible for creating the relatively flat valley running diagonally NE and SW of Broadus?

“Once again, this is KUBK’s Patty Panic with final details of today’s exciting search for the escaped creatures of the Great Western Circus. All animals have been captured and are now safely confined to their cages. To show his gratitude to all the residents of Broadus for their assistance in capturing his valuable animals, the owner of the Great Western Circus will present a free performance tomorrow evening at the Broadus Rodeo Grounds at 7:00 p.m.”

Student Response Sheet for "Escape from Broadus"

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30. _____

Answer Key

Maps used for this Exam:

1. Rand-McNally Idaho-Montana Highway Map
2. 7.5' Monday Creek [Montana]
3. 7/5' Broadus Quad [Montana]
4. 7/5" Epsie Quad [Montana]

To obtain a complete set of maps for this unit, visit <http://www.otherworlds-edu.com>

1. b [U.S.]
2. a [Primary highway]
3. 169 feet
4. Acceptable range: 13,600' to 13,800'
5. Acceptable range: 12.24' to 12.43'/1000'
6. b [Intermittent]
7. NW
8. Powder River
9. 3 or NE
10. 1 or NW
11. b [Greater than]
12. Hawkey Creek
13. 45° 27' 30" N 105° 20' W
14. Four
15. Powder River
16. 572
17. 44th
18. County Seat
19. 3801'
20. Acceptable range: 125° - 129°
21. Acceptable range: 3.7 - 3.8 miles
22. A windmill
23. 3700'
24. Accept two of the following: Sanders Creek, South Fork, or Serviceberry Creek
25. a [Jeeps]
26. Drill well symbols are black; water well symbols are blue.
27. Acceptable range: 3100' - 3300'
28. [Brown] dotted lines
29. Fence lines
30. Powder River