

FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

P.S.–E.S. PHYSICAL SETTING/EARTH SCIENCE

Thursday, June 15, 2017 — 1:15 to 4:15 p.m., only

SCORING KEY AND RATING GUIDE

Directions to the Teacher:

Refer to the directions on page 2 before rating student papers.

Updated information regarding the rating of this examination may be posted on the New York State Education Department’s web site during the rating period. Check this web site at: <http://www.p12.nysed.gov/assessment/> and select the link “Scoring Information” for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Part A and Part B–1

Allow 1 credit for each correct response.

Part A

1 2	10 1	19 3	28 2
2 4	11 4	20 2	29 2
3 1	12 2	21 1	30 1
4 3	13 1	22 3	31 1
5 3	14 3	23 4	32 1
6 2	15 3	24 1	33 3
7 2	16 4	25 3	34 3
8 3	17 1	26 4	35 4
9 2	18 2	27 1	

Part B–1

36 2	40 3	44 2	48 1
37 4	41 3	45 1	49 1
38 4	42 4	46 4	50 3
39 4	43 1	47 3	

Directions to the Teacher

Follow the procedures below for scoring student answer papers for the Regents Examination in Physical Setting/Earth Science. Additional information about scoring is provided in the publication *Information Booklet for Scoring Regents Examinations in the Sciences*.

Do not attempt to correct the student's work by making insertions or changes of any kind. If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Allow 1 credit for each correct response.

At least two science teachers must participate in the scoring of the Part B–2 and Part C open-ended questions on a student's paper. Each of these teachers should be responsible for scoring a selected number of the open-ended questions on each answer paper. No one teacher is to score more than approximately one-half of the open-ended questions on a student's answer paper. Teachers may not score their own students' answer papers.

Students' responses must be scored strictly according to the Scoring Key and Rating Guide. For open-ended questions, credit may be allowed for responses other than those given in the rating guide if the response is a scientifically accurate answer to the question and demonstrates adequate knowledge as indicated by the examples in the rating guide. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Fractional credit is *not* allowed. Only whole-number credit may be given for a response. If the student gives more than one answer to a question, only the first answer should be rated. Units need not be given when the wording of the questions allows such omissions.

For hand scoring, raters should enter the scores earned in the appropriate boxes printed on the separate answer sheet. Next, the rater should add these scores and enter the total in the space provided. The student's score for the Earth Science Performance Test should be recorded in the space provided. Then the student's raw scores on the written test and the performance test should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Thursday, June 15, 2017. The student's scale score should be entered in the box labeled "Scale Score" on the student's answer sheet. The scale score is the student's final examination score.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score.

Part B–2

Allow a maximum of 15 credits for this part.

To ensure the accuracy of overlays, select a printer setting such as *full*, *actual size* or *100%* when printing this document. Do **not** select the *fit to page* setting.

- 51 [1] Allow 1 credit for Mercury.
- 52 [1] Allow 1 credit if *both* terrestrial planet is circled and an acceptable characteristic is described. Acceptable responses include, but are not limited to:
- smaller diameter than Jovian
 - higher density
 - Terrestrial planet densities range from 3.9 g/cm^3 to 5.5 g/cm^3 .
 - rocky/solid
 - not gaseous
 - closer to the Sun
 - less mass
 - shorter period of revolution
 - longer periods of rotation
 - Terrestrial planets don't have rings.
- 53 [1] Allow 1 credit for exoplanet *b* with an acceptable explanation. Acceptable explanations include, but are not limited to:
- The planet closest to the star moves fastest due to greatest gravitational force.
 - It is closest and has the least distance to travel in its orbit.
 - The planet with the shortest period of revolution is always the planet that is nearest to the star.
 - The closer to the star, the faster an exoplanet orbits.
 - closest to the star/Sun
 - Exoplanet *b* has the smallest/shortest orbit.

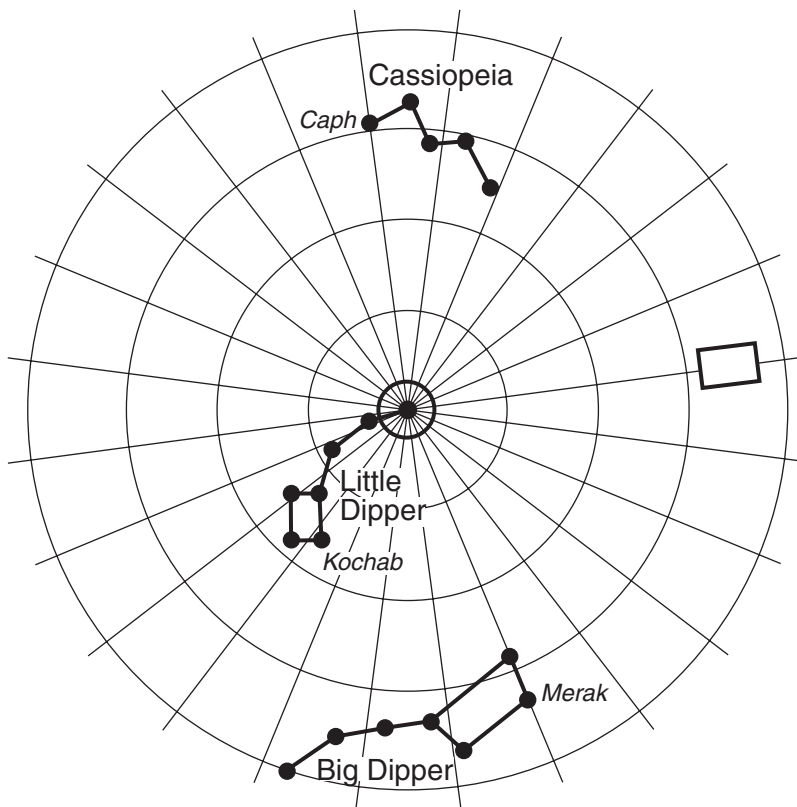
54 [1] Allow 1 credit for circling only the star *Polaris* in the center of the star chart as shown in the diagram below.

55 [1] Allow 1 credit if the center of the **X** is located within or touching the box shown on the star chart below.

Note: Allow credit if a symbol other than an **X** is used.

It is recommended that an overlay of the same scale as the student answer sheet be used to ensure reliability in rating.

Example of a 1-credit response for question 54 and a 1-credit acceptable range for question 55:



56 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Earth rotation
- spinning/turning on Earth's axis
- rotation

Note: Do *not* allow credit for “Earth rotates clockwise” because a clockwise rotation of the Northern Hemisphere would *not* cause the stars to appear to move counterclockwise around *Polaris*.

57 [1] Allow 1 credit for trilobites.

58 [1] Allow 1 credit for *Eurypterus* or *Stylonurus* or *Eurypterus remipes*.

Note: Do *not* allow credit for “eurypterid” or “eurypterids” because these indicate a group of organisms, not a specific index fossil.

59 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- marine
- an ocean/sea
- in a water environment
- a shallow sea

60 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- convergent
- subduction zone
- plate collision

61 [1] Allow 1 credit for *both* circling plutonic and a correct cooling rate. Acceptable responses include, but are not limited to:

- slow
- took a long time to cool

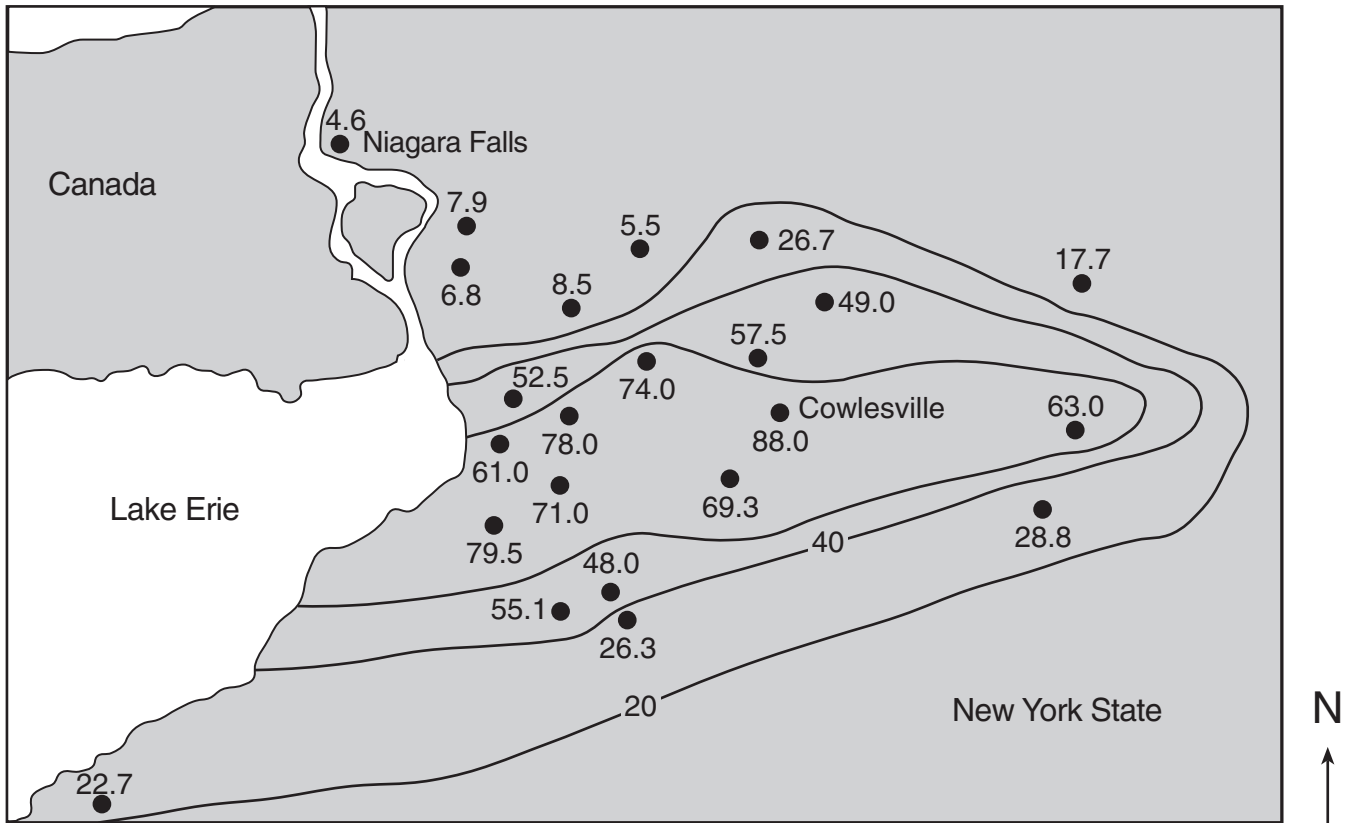
62 [1] Allow 1 credit if *both* responses are correct.

North American Plate continental crust: 2.7 g/cm^3

Pacific Plate oceanic crust: 3 or 3.0 g/cm^3

63 [1] Allow 1 credit if the 60-inch isoline is correctly drawn to the edge of Lake Erie. If additional lines are drawn, all isolines must be correct to receive credit. The isoline may form a closed loop *or* extend over the lake.

Example of a 1-credit response:



64 [1] Allow 1 credit for any value from 1.0 in/h to 1.1 in/h.

65 [1] Allow 1 credit for *two* correct responses. Acceptable responses include, but are not limited to:

- Have warm clothing/blankets.
- Purchase salt *or* grit/sand.
- Check for sufficient medicine.
- Make sure that extra batteries are available.
- Have flashlights handy.
- Make sure that generators are in working condition.
- Make sure that cell phone is charged.
- Stock up on water.
- Stock up on food.
- Have snowblowers/snow shovels ready.

Part C

Allow a maximum of 20 credits for this part.

66 [1] Allow 1 credit for position 5.

Note: Do *not* allow credit for “new moon” because this does not indicate a position on the diagram.

67 [1] Allow 1 credit for position 2 → position 3 → position 4.

Note: Do *not* allow credit for the names of moon phases because they do not indicate positions on the diagram.

68 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The Moon’s period of rotation and period of revolution are equal.
- The Moon rotates and revolves at the same rate/in the same amount of time.
- The Moon rotates and revolves once in 27.3 days.
- The Moon rotates only once per revolution.

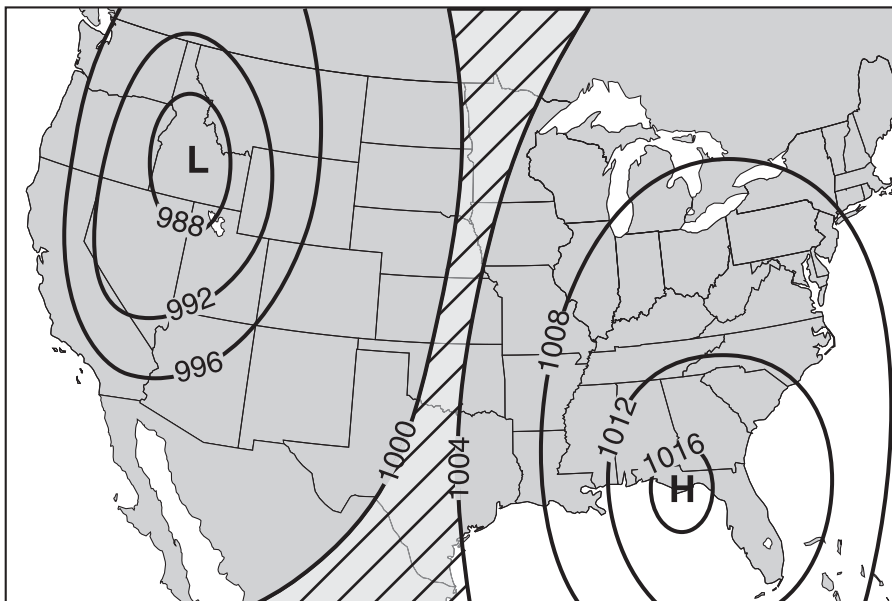
69 [1] Allow 1 credit if the **L** is mostly within the 988 isobar and the **H** is mostly within the 1016 isobar as shown on the map below.

70 [1] Allow 1 credit if the center of the **X** is within the diagonally lined area shown on the map below.

Note: If more than one **X** is drawn, all **X**s must be correct to receive credit.

Do *not* allow credit if the center of the student-drawn **X** touches either the 1000 or 1004 isobar.

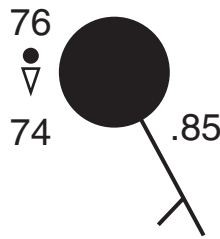
Example of a 1-credit response for question 69 and a 1-credit acceptable area for question 70:



71 [1] Allow 1 credit if *all four* weather conditions are in the correct location and in the correct format.

Note: Do *not* allow credit for “0.85” because this is *not* the correct format used on a weather station model.

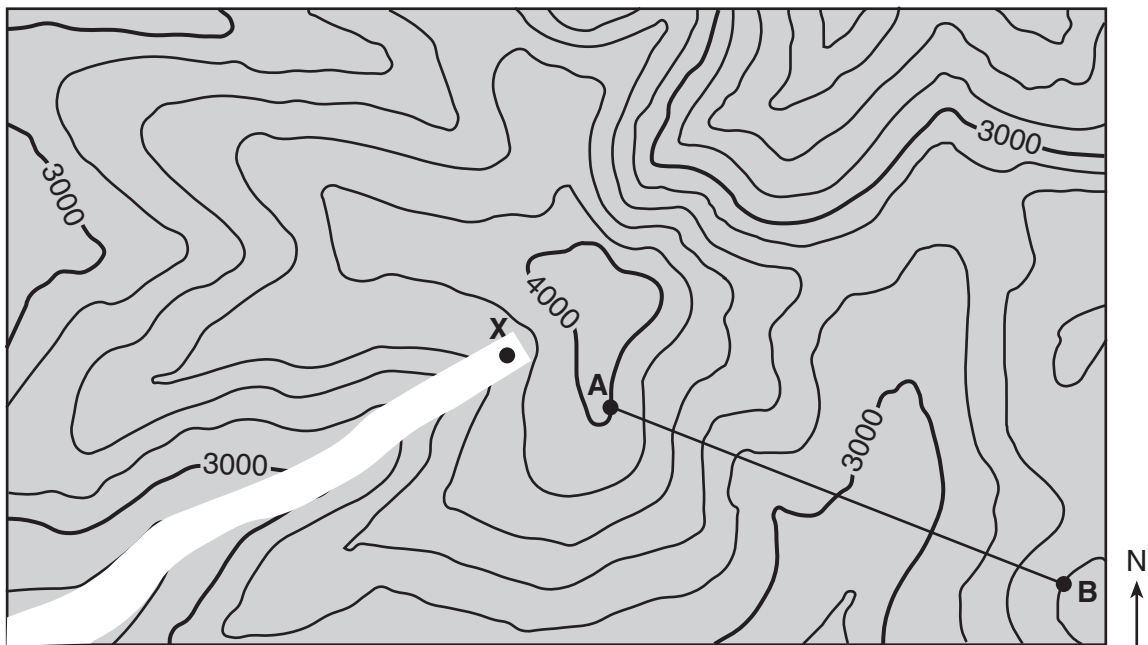
Example of a 1-credit response:



72 [1] Allow 1 credit for a line starting at point X, drawn within or touching the outside edge of the unshaded region, and ending at the edge of the map, as shown below.

Note: It is recommended that an overlay of the same scale as the student answer sheet be used to ensure reliability in rating.

Slide Mountain



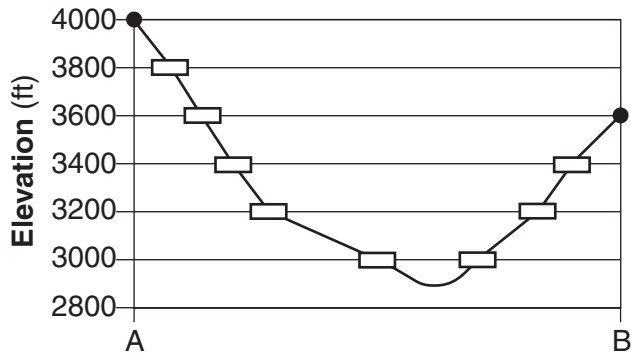
Contour interval = 200 feet

73 [1] Allow 1 credit for any value greater than 3600 ft but less than 3800 ft.

- 74 [1] Allow 1 credit if the centers of *all eight* student plots are within or touch the rectangles shown below and are correctly connected with a line from *A* to *B* that passes within or touches each rectangle. The line should extend below 3000 ft but not touch 2800 ft in the valley.

Note: Allow credit if the line does *not* pass through the student plots, but is still within or touches the rectangles.

It is recommended that an overlay of the same scale as the student answer sheet be used to ensure reliability in rating.



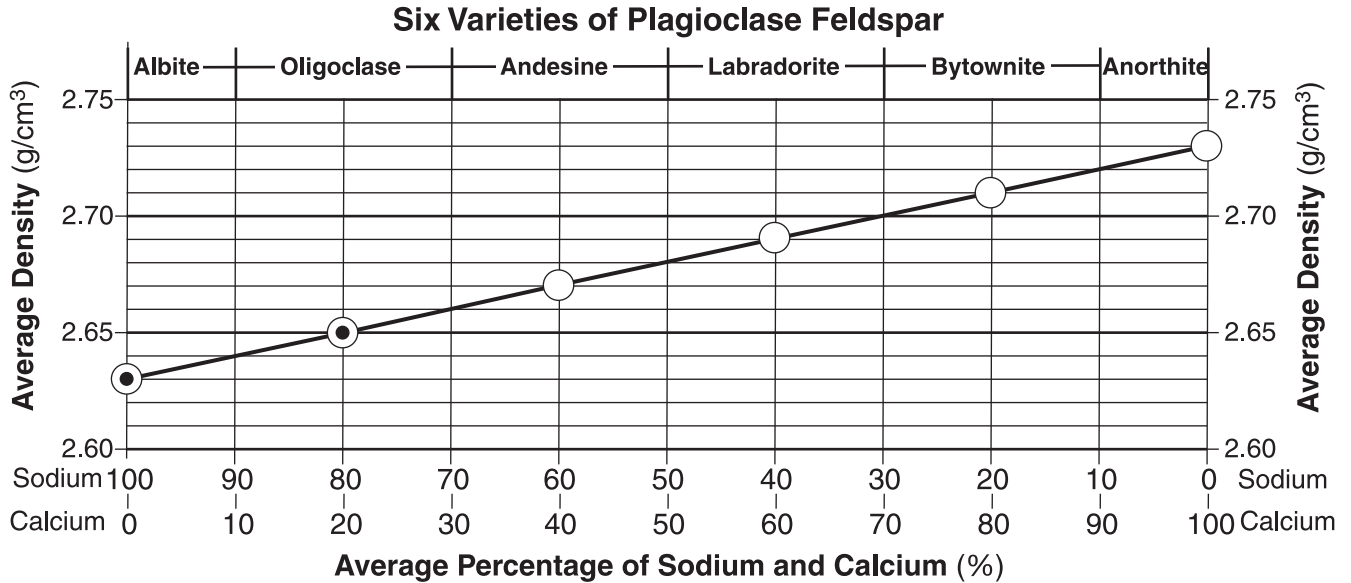
- 75 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Contour lines are closer together.
- The spaces between the contour lines are smallest.
- There is a greater change in elevation over a shorter distance on the northeastern side.
- There are more lines on the northeast side of the mountain.
- Isolines are more closely spaced.

- 76 [1] Allow 1 credit if the centers of *all four* student plots are within or touch the circles shown below and all *six plots* are correctly connected with a line that passes within or touches each circle.

Note: Allow credit if the line does *not* pass through the student plots, but is still within or touching the circles.

It is recommended that an overlay of the same scale as the student answer sheet be used to ensure reliability in rating.



- 77 [1] Allow 1 credit for labradorite.

- 78 [1] Allow 1 credit for andesine.

Note: Do *not* allow credit for “andesite” because this is an igneous rock, *not* a variety of feldspar.

- 79 [1] Allow 1 credit for albite, *or* oligoclase, *or* andesine.

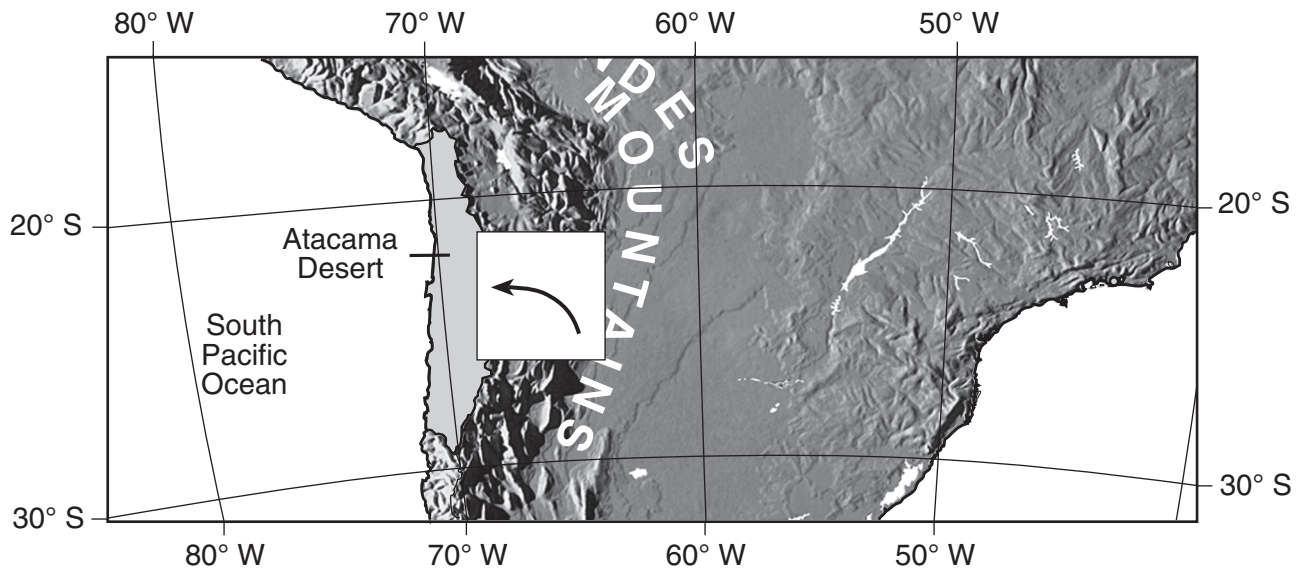
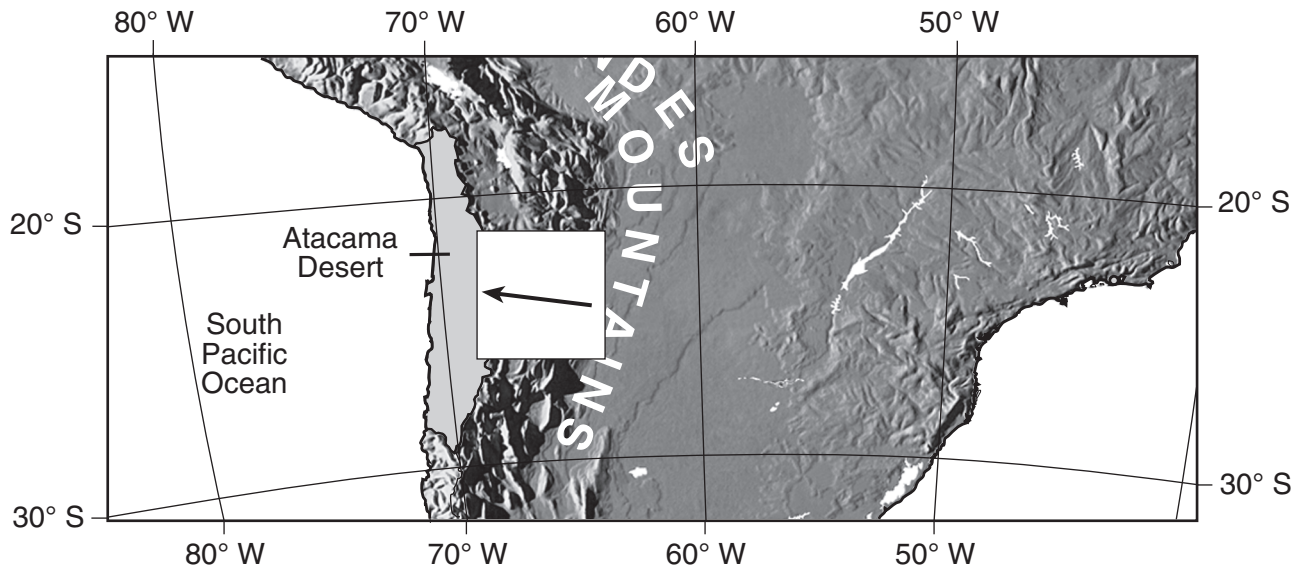
Note: Do *not* allow credit for “andesite” because this is an igneous rock, *not* a variety of feldspar.

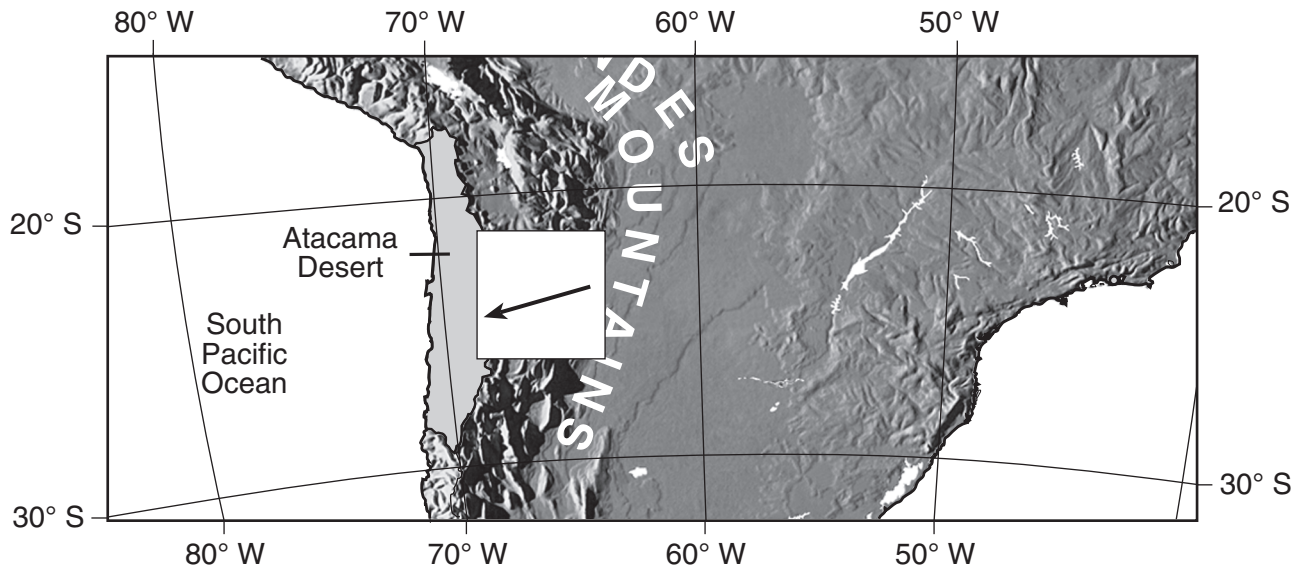
- 80 [1] Allow 1 credit for Nazca Plate *or* Antarctic Plate *or* Cocos Plate *or* Caribbean Plate.

81 [1] Allow 1 credit for a straight or curved arrow drawn generally pointing toward the west or northwest.

Note: If more than one arrow is drawn, all must be correct to receive credit.

Examples of 1-credit responses:





82 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- elevation/high elevation
- altitude
- height above sea level

83 [1] Allow 1 credit for *three* correct minerals. Acceptable responses include, but are not limited to:

- plagioclase feldspar *or* plagioclase
- biotite *or* biotite mica
- amphibole *or* hornblende
- pyroxene *or* augite
- quartz

Note: Do *not* allow quartz as a correct mineral with either pyroxene or augite because a single andesite rock cannot contain both pyroxene and quartz.

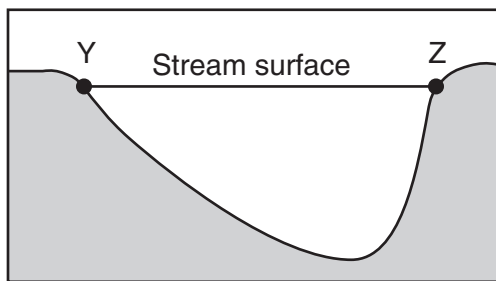
84 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

Evidence:

- The stream at A shows a narrow V-shaped valley.
- The stream at C shows more meandering.
- A wider floodplain is found at C.
- The stream at A is straighter.
- It has no floodplain.

85 [1] Allow 1 credit if the student's line is drawn from point Y to point Z and shows that the stream channel is deepest near side Z.

Example of 1-credit response:



Regents Examination in Physical Setting/Earth Science

June 2017

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the June 2017 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Thursday, June 15, 2017. Conversion charts provided for previous administrations of the Regents Examination in Physical Setting/Earth Science must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to <http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm>.
2. Select the test title.
3. Complete the required demographic fields.
4. Complete each evaluation question and provide comments in the space provided.
5. Click the **SUBMIT** button at the bottom of the page to submit the completed form.

Map to Core Curriculum

June 2017 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1	34	55, 64	74, 76, 78
Math Key Idea 2	8, 28	49, 50	77
Math Key Idea 3		44, 63, 64	69, 72
Science Inquiry Key Idea 1	19, 23, 30, 35	38, 50, 53, 56, 59	68, 75, 82
Science Inquiry Key Idea 2			
Science Inquiry Key Idea 3	1, 5, 6, 10, 12, 15, 16, 17, 21, 24, 25, 28, 29, 33, 34	39, 41, 43, 45, 46, 47, 48, 52, 54, 57, 58, 59, 60, 61, 62	68, 70, 71, 77, 78, 79, 80, 81, 83
Engineering Design Key Idea 1			72
Standard 2			
Key Idea 1			69
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1	35	40	84, 85
Key Idea 2	5, 11, 14, 15, 16, 19, 25, 27, 30, 31, 32, 33, 35	36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 51, 53, 54, 55, 57, 60, 61, 63	66, 67, 69, 70, 71, 72, 73, 74, 75, 76, 78, 81, 84, 85
Key Idea 3			73
Key Idea 4		53	
Key Idea 5	7, 8, 9, 19, 22, 32, 33	36, 42, 46, 49, 55, 61	66, 67, 84, 85
Key Idea 6			
Standard 7			
Key Idea 1			
Key Idea 2		65	
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 14, 24, 26, 32, 33, 34	36, 37, 38, 39, 41, 42, 45, 47, 51, 52, 53, 54, 55, 56, 57, 58, 59	66, 67, 68
Key Idea 2	10, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 28, 30, 31, 35	40, 43, 44, 46, 47, 48, 49, 50, 60, 62, 63, 64, 65	69, 70, 71, 72, 73, 74, 75, 80, 81, 82, 84, 85
Key Idea 3	29	61	76, 77, 78, 79, 83
Reference Tables			
ESRT 2011 Edition (Revised)	1, 5, 6, 10, 12, 15, 16, 17, 21, 24, 25, 28, 29, 33, 34	39, 43, 45, 47, 52, 57, 58, 59, 60, 61, 62, 64	68, 70, 71, 78, 79, 80, 81, 83