2025

AP® English Language and Composition

Free-Response Questions

Set 1

ENGLISH LANGUAGE AND COMPOSITION
SECTION II
TIME – 2 HOURS AND 15 MINUTES

Directions:

Section II has 3 free-response questions and lasts 2 hours and 15 minutes.

This section of the exam requires answers in essay form. Each essay will be judged on its clarity and effectiveness in dealing with the assigned topic and on the quality of the writing.

You may pace yourself as you answer the questions in this section, or you may use these optional timing recommendations:

- Question 1 (Synthesis): approximately 15 minutes reading the question, analyzing and evaluating the sources, and planning your answer, and 40 minutes writing your answer
- Question 2 (Rhetorical Analysis): approximately 40 minutes writing your answer
- Question 3 (Argument): approximately 40 minutes writing your answer

You may use scratch paper for notes and planning, but credit will only be given for responses entered in this application. Text you enter as an annotation will **not** be included as part of your answer. You can go back and forth between questions in this section until time expires. The clock will turn red when 5 minutes remain—**the proctor will not give you any time updates or warnings.**

Note: This exam was originally administered digitally. It is presented here in a format optimized for teacher and student use in the classroom.

1. As nations and space agencies have sent spacecraft and satellites into space, human-created debris—or "space junk"—has accumulated in orbit around Earth. Space debris may range in size from small parts and flecks of paint to whole defunct satellites, but all of it poses a potential risk if it collides with a spacecraft. Many countries have agreed that the management of space debris is a priority because it poses a threat to space exploration and satellites. However, removing it is difficult and costly.

Carefully read the following six sources, including the introductory information for each source. Write an essay that synthesizes material from at least three of the sources and develops your position on the most important factors that space agencies and nations should consider when dealing with the problem of space debris.

Source A (O'Callaghan article)

Source B (graph from ESA)

Source C (Quell article)

Source D (Rossettini opinion article)

Source E (NOAA article)

Source F (chart from Mosher and Kiersz)

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Select and use evidence from at least three of the provided sources to support your line of reasoning. Indicate clearly the sources used through direct quotation, paraphrase, or summary. Sources may be cited as Source A, Source B, etc., or by using the description in parentheses.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

Source A

O'Callaghan, Jonathan. "What Is Space Junk and Why Is It a Problem?" *Natural History Museum*, nhm.ac.uk/discover/what-is-space-junk-and-why-is-it-a-problem.html.

The following is an excerpt from an article on the website of the Natural History Museum, London, which conducts scientifc research and displays scientifc findings and collections to the public.

What is space junk?

Space junk, or space debris, is any piece of machinery or debris left by humans in space.

It can refer to big objects such as dead satellites that have failed or been left in orbit at the end of their mission. It can also refer to smaller things, like bits of debris or paint flecks that have fallen off a rocket.

Some human-made junk has been left on the Moon, too.

How much space junk is there?

While there are about 2,000 active satellites orbiting Earth at the moment, there are also 3,000 dead ones littering space. What's more, there are around 34,000 pieces of space junk bigger than 10 centimetres in size and millions of smaller pieces that could nonetheless prove disastrous if they hit something else.

How does space junk get into space?

All space junk is the result of us launching objects from Earth, and it remains in orbit until it re-enters the atmosphere.

Some objects in lower orbits of a few hundred kilometres can return quickly. They often re-enter the atmosphere after a few years and, for the most part, they'll burn up—so they don't reach the ground. But debris or satellites left at higher altitudes of 36,000 kilometres—where communications and weather satellites are often placed in geostationary orbits[1]—can continue to circle Earth for hundreds or even thousands of years.

Some space junk results from collisions or anti-satellite tests in orbit. When two satellites collide, they can smash apart into thousands of new pieces, creating lots of new debris. This is rare, but several countries including the USA, China and India have used missiles to practice blowing up their own satellites. This creates thousands of new pieces of dangerous debris.

What risks does space junk pose to space exploration?

Fortunately, at the moment, space junk doesn't pose a huge risk to our exploration efforts. The biggest danger it poses is to other satellites in orbit.

These satellites have to move out of the way of all this incoming space junk to make sure they don't get hit and potentially damaged or destroyed.

In total, across all satellites, hundreds of collision avoidance maneuvers are performed every year, including by the International Space Station (ISS), where astronauts live.

Fortunately, collisions are rare: a Chinese satellite broke up in March 2021 after a collision. Before that, the last satellite to collide and be destroyed by space junk was in 2009. And when it comes to exploring beyond Earth's orbit, none of the limited amount of space junk out there poses a problem.

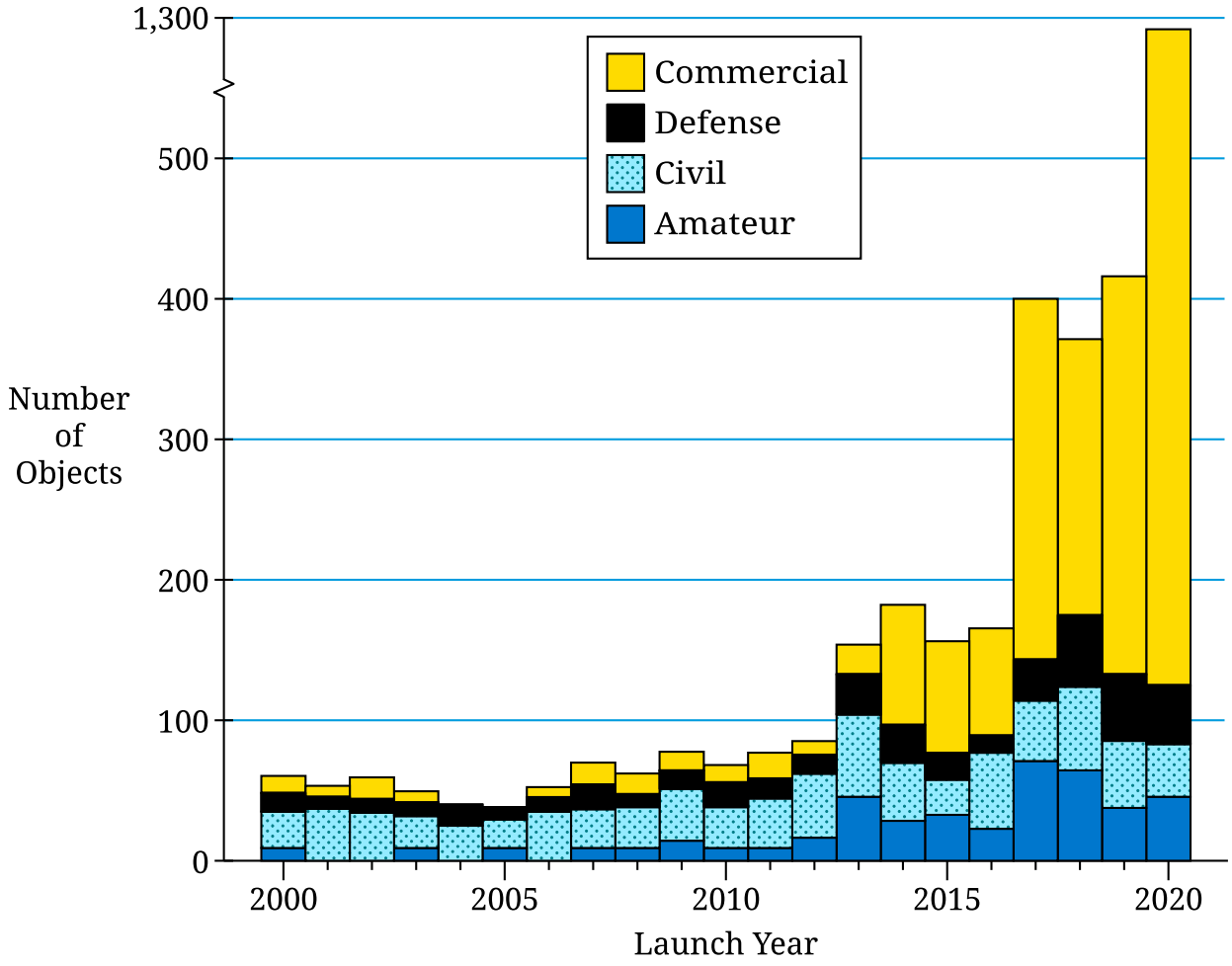
1: Satellites in geostationary orbit circle Earth above the equator following Earth's rotation.

Source B

"ESA's Space Environment Report 2021." *ESA*, The European Space Agency, esa.int/Space_Safety/Space_Debris/ESA_s_Space_Environment_Report_2021.

The following is adapted from a graph published on the website of the European Space Agency, an international organization with 22 member states.

Satellites Launched into Low-Earth Orbit



Note: Satellites are classified here according to their main source of funding.

"Commercial" indicates funding from a private business.

"Defense" indicates funding from a military source.

"Civil" indicates funding from a nonmilitary governmental source.

"Amateur" indicates funding from other sources, including private individuals and academic institutions.

Source C

Quell, Molly. "Lack of Space Law Complicates Growing Debris Problem." *Courthouse News Service*, 28 Aug. 2020, courthousenews.com/lack-of-space-law-complicates-growing-debris-problem/.

The following is excerpted from an article published by an American news service specializing in legal issues.

In total, there are five United Nations treaties that cover various aspects of space. The earliest, the Outer Space Treaty, which was ratified in 1967, has 104 signatories. It declared space free for all nations to explore and banned the use of nuclear weapons in space, a major security concern during the Cold War.

Prior to the signing of the Outer Space Treaty, each nation was considered to have sovereignty over the air above its borders. This concept was laid down in the Paris Convention of 1919, which aimed to regulate aerial travel, a new and rapidly developing industry.

Subsequent treaties—such as a 1968 agreement on the rescue of astronauts and the 1975 Registration Convention, which requires that objects launched into space be registered with a U.N. body—cover narrow aspects of space travel and have been signed by fewer than half of the world's countries.

Collisions have occurred in space. Most of them are between defunct satellites, but one 1977 crash scattered radioactive debris across Canada. A malfunction onboard the nuclear-powered Soviet spy satellite Kosmos 954 pushed it back into the Earth's atmosphere and Canada billed the Soviet Union more than 6 million Canadian dollars ($18 million today) for the damage. The two countries ultimately agreed on 3 million Canadian dollars ($9 million today).

The problem is only getting worse, said Oliver Tian, a researcher in the legal framework of space debris at the University of Leiden in The Netherlands. Nearly 9,000 satellites have been launched since the Soviet Union first sent Sputnik 1 to the Earth's orbit in 1957. SpaceX alone has launched 60 satellites this year.

Most of what goes into space doesn't come back. Nations aren't required to remove their garbage from space and to do so voluntarily would cost a tremendous amount of money. So more than half of those 9,000 satellites remain, some as operational but more as decommissioned junk. As they crash into each other, they create more tiny bits of debris whizzing around the Earth.

"Space could be inaccessible to humans," said Tian.

This worst-case scenario is known as the Kessler Effect, when the quantity of space debris created from objects crashing into one another increases until it's no longer possible to travel through it.

The European Space Agency launched its Clean Space Initiative in 2013 and has commissioned the first debris removal mission, scheduled for 2025. Together with the Swiss tech startup Clear Space, the ESA plans to use robotic arms to capture part of a rocket and deorbit it to the Earth's atmosphere, where it will burn up on reentry.

"This is an environmental problem," said Schrogl. "What is happening on Earth is happening in space."

Despite the growing problem, the ESA's chief strategy officer is optimistic. Unlike other issues facing humanity—climate change, poverty, war—the ones surrounding space debris have clear and straightforward solutions. If, that is, countries are willing to get together and act.

"It is a solvable problem," Schrogl said.

Courtesy of Courthouse News Service

Source D

Rossettini, Luca. "Space Debris: Prevention, Remediation or Mitigation?" *SpaceNews*, 3 Mar. 2015, spacenews.com/op-ed-space-debris-prevention-remediation-or-mitigation/.

The following is an excerpt from an opinion article published in an online newsletter that focuses on the analysis of factors and trends shaping the global space industry. The author is the chief executive and cofounder of a start-up company dedicated to addressing the space debris problem.

What is the best strategy to stop the increasing concentration of junk around the planet?

Passive and active devices can be installed on satellites to remove them at the end of their missions. Some envision an active debris removal (ADR) mission to go grab a dead satellite and remove it. There are even studies for refurbishing missions, where a robotic space vehicle would grab a satellite nearing its end of life to refuel and service it. Nearly all of these plans are real only on paper.

Effort and money are being spent today on the development of ADR missions, a remediation technique focused on eliminating the garbage that is already in space. These technologies, once developed, will permit spacecraft to grab large or small satellites and remove them from orbit. Unfortunately there are still several criticalities to face. There are political and legal issues related to the ownership of defunct satellites that prevent, for example, a European ADR vehicle from disposing of an Indian satellite without permission. There are also technology development challenges, like the need to capture a noncooperating target. Finally, there is the cost of every single mission that will be paid by taxpayers. Moreover, according to some experts, we need to remove about 10 big satellites per year to significantly reduce the collision risk. With more than 100 satellites launched into space every year, pulling 10 down does not get us closer....

Mitigation is the process of reducing the likelihood that a specific object will cause more debris. It involves passivation[1] of rocket bodies and decommissioned spacecraft—venting pressure vessels and fuel tanks and discharging batteries to prevent explosions in space. These fundamental measures are quite well implemented in all the new satellites launched.

But once more, mitigation measures by themselves don't get us any closer still.

In the end we can't limit ourselves to "reducing," "remediating" or "mitigating" if what we ultimately want is to operate in a clean space, where operators are not bothered by other threatening man-made objects approaching their assets.

We should first make sure that every new satellite and launch vehicle is properly and effectively removed at the end of life. Then we can start removing the defunct satellites already in space. Finally, we may think about recycling and reusing spent satellites already in space.

Therefore, prevention is the first action to be put in place, while we develop effective and efficient technologies for the ADR missions. Tethers, balloons, solar sails and active decommissioning devices are all examples of systems that can be installed on satellites before launch to increase the chances of being able to dispose of them at the end of life. Whatever is ready and available today is better than doing nothing. No more dead satellites such as DMSP-F13 should be left uncontrolled in orbit, representing a risk to operative satellites due to possible collisions and to the safe access to space of incoming missions.

Used with permission

1: in engineering, a process that makes a material less vulnerable to corrosion or other interaction with its environment

Source E

National Environmental Satellite, Data, and Information Service. "Does Space Junk Fall from the Sky?" *National Oceanic and Atmospheric Administration*, 19 Jan. 2018, www.nesdis.noaa.gov/news/does-space-junk-fall-the-sky.

The following is an excerpt from an article published on a National Oceanic and Atmospheric Administration (NOAA) website devoted to providing environmental data gathered from satellites.

Despite their size, even the smallest of objects, some of which cannot be detected by sensors, can be hazardous to unmanned and manned spacecraft. This is because they are orbiting at extremely high velocities. This is faster than a bullet, which means that the debris can easily punch through the protective covering on satellites or spacecraft.

While space debris is rarely a concern for humans on Earth, our satellites in the sky often have to avoid its dangerous path.

NOAA / NASA Suomi NPP Satellite Avoids Head On Collision at 35,000 mph

For example, on an otherwise quiet Sunday in September 2014, the Suomi NPP mission team was monitoring the possible close approach of a debris object (which was determined to be between 4 inches and 3.3 feet in size range). By early evening, the risk was assessed to be high enough to start planning to maneuver the satellite into a safer zone.

The team determined that the small space debris object was traveling at a rate of almost 17,000 mph directly towards Suomi NPP. They calculated that if no action was taken, it was likely to miss the satellite by just 300 feet on Tuesday, September 30. With that knowledge, the decision was made at 1:30 p.m. on Monday, September 29, for NOAA's Satellite Operations Facility, or NSOF, in Suitland, Maryland, to reposition Suomi NPP.

"Because Suomi NPP moves at a similar speed as the debris object, if there had been an impact, it would have occurred at a combined speed of nearly 35,000 mph. This would have been catastrophic not only to the satellite, but would result in thousands of pieces of new debris," said Harry Solomon, Mission Manager for NOAA/NASA Suomi NPP.

Since Suomi NPP's launch in October 2011, it has successfully completed a few Risk Mitigation Maneuvers to avoid space debris!

Where to Safely Crash Space Junk? The Most Remote Place on Earth!

In a global effort to reduce space debris, many satellite mission teams are able to safely maneuver retired satellites back into Earth's atmosphere so that one of two things occur. For satellites orbiting close to Earth, operators lower the orbit of a decommissioned satellite so that it will naturally re-enter the atmosphere within 25 years (known as the "25-year Rule"). As the satellite begins to fall back toward Earth and loses altitude, the compression and friction in the dense region of the atmosphere closest to the Earth generates a lot of heat which breaks up and burns most of the satellite machinery.

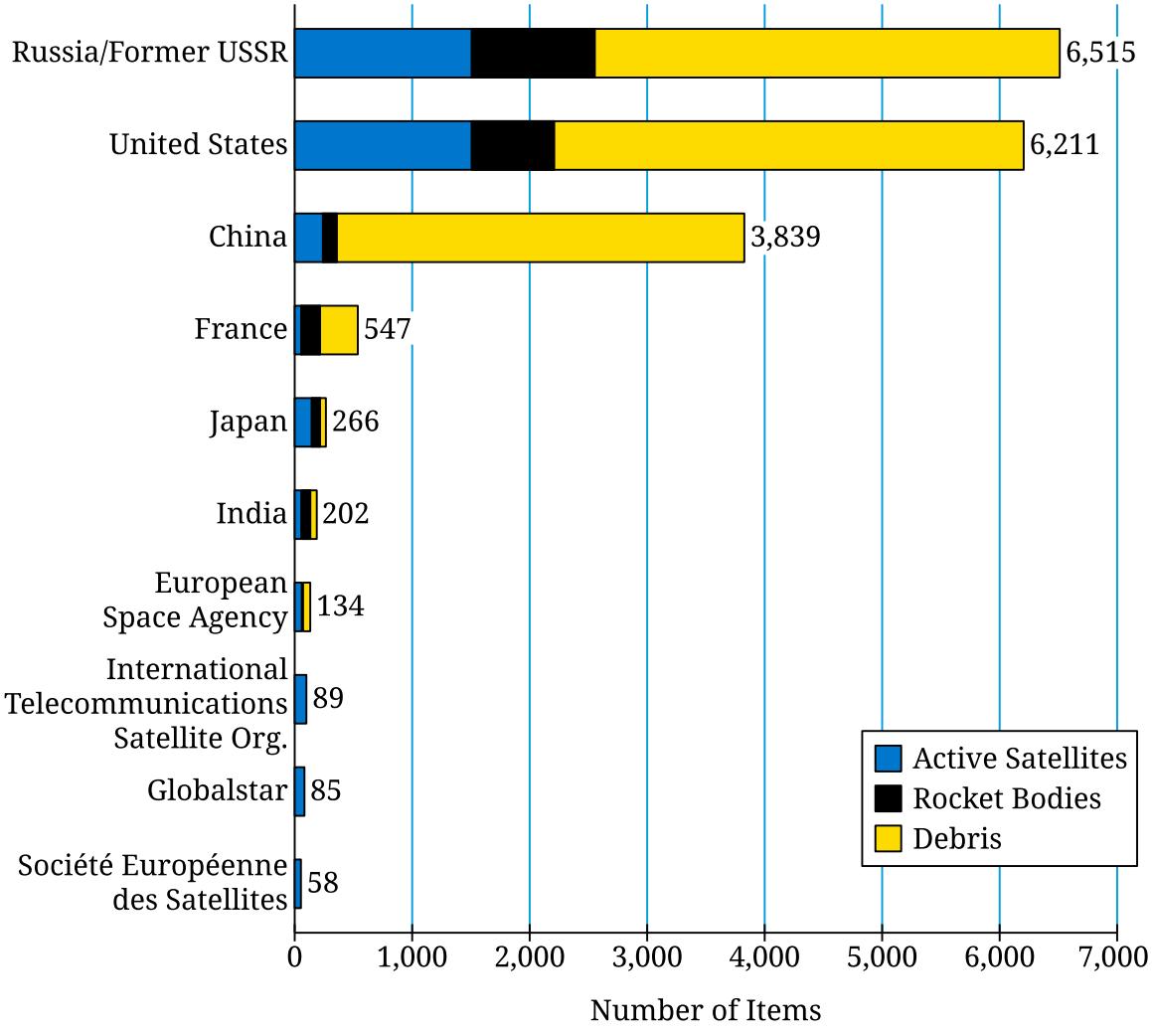
Or, if the satellite has enough fuel, it can fly back through the atmosphere and be crashed into the ocean. This Pacific Ocean location has many names, Point Nemo (which is Latin for 'no one') and the Oceanic Pole of Inaccessibility. The nearest land mass is 1,450 nautical miles away.

Source F

Mosher, Dave, and Andy Kiersz. "These Are the Countries on Earth with the Most Junk in Space." *Business Insider*, 20 Oct. 2017, businessinsider.com/space-debris-garbage-statistics-country-list-2017-10.

The following is a chart based on an image published in an online business magazine.

Countries and Agencies with the Most Stuff in Orbit



Note: The European Space Agency is an intergovernmental organization devoted to space exploration. The International Telecommunications Satellite Organization is an international regulator of satellite services. Globalstar and Société Européenne des Satellites are private telecommunications providers.

2. The following is a passage from the introduction to David Treuer's 2012 nonfiction book *Rez Life: An Indian's Journey Through Reservation Life*. Treuer is a member of the Leech Lake Band of Ojibwe, a tribal nation in Minnesota. In *Rez Life*, Treuer draws on research and personal experience to explore the history of reservations and the issues that affect Native Americans who live on them today. A reservation is an area of land governed by a tribal nation in what is now the United States. Read the passage carefully. Write an essay that analyzes the rhetorical choices Treuer makes to develop his argument about the contributions that Native Americans and their communities have made to the United States.

In your response you should do the following:

- Respond to the prompt with a thesis that analyzes the writer's rhetorical choices.
- Select and use evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Demonstrate an understanding of the rhetorical situation.
- Use appropriate grammar and punctuation in communicating your argument.

Par.

1 [T]he sign reads: WELCOME TO THE LEECH LAKE INDIAN RESERVATION HOME OF THE LEECH LAKE BAND OF OJIBWE PLEASE KEEP OUR ENVIRONMENT CLEAN, PROTECT OUR NATURAL RESOURCES NO SPECIAL LICENCES REQUIRED FOR HUNTING, FISHING, OR TRAPPING.

2 If you're driving—as since this is America is most likely the case—the sign is soon behind you and soon forgotten. However, something is different about life on one side of it and life on the other. It's just hard to say exactly what. The landscape is unchanged. The same pines, and the same swamps, hay fields, and jeweled lakes dropped here and there among the trees, exist on both sides of the sign. The houses don't look all that different, perhaps a little smaller, a little more ramshackle. The children playing by the road do look different, though. Darker. The cars, most of them, seem older. And perhaps something else is different, too.

3 You can see these kinds of signs all over America. There are roughly 310 Indian reservations in the United States, though the Bureau of Indian Affairs (BIA) doesn't have a sure count of how many reservations there are (this might say something about the BIA, or it might say something about the nature of reservations). Not all of the 564 federally recognized tribes in the United States have reservations. Some Indians don't have reservations, but all reservations have Indians, and all reservations have signs. There are tribal areas in Brazil, Afghanistan, and Pakistan, among many other countries. But reservations as we know them are, with the exception of Canada, unique to America. You can see these signs in more than thirty of the states, but most of them are clustered in the last places to be permanently settled by Europeans: the Great Plains, the Southwest, the Northwest, and along the Canadian border stretching from Montana to New York. You can see them in the middle of the desert, among the strewn rocks of the Badlands, in the suburbs of Green Bay, and within the misty spray of Niagara Falls. Some of the reservations that these signs announce are huge. There are twelve reservations in the United States bigger than the state of Rhode Island. Nine reservations are larger than Delaware (named after a tribe that was pushed from the region). Some reservations are so small that the sign itself seems larger than the land it denotes. Most reservations are poor. A few have become wealthy. In 2007 the Seminole bought the Hard Rock Café franchise. The Oneida of Wisconsin

helped renovate Lambeau Field in Green Bay. And whenever Brett Favre[1] (who claims Chickasaw blood) scored a touchdown there as a Packer, a Jet, or a Minnesota Viking, he did it under Oneida lights cheered on by fans sitting on Oneida bleachers, not far from the Oneida Nation itself.

4 Indian reservations, and those of us who live on them, are as American as apple pie, baseball, and muscle cars. Unlike apple pie, however, Indians contributed to the birth of America itself. The Oneida were allies of the Revolutionary Army who fed U.S. troops at Valley Forge and helped defeat the British in New York, and the Iroquois Confederacy served as one of the many models for the American constitution. Marx and Engels[2] also cribbed from the Iroquois as they developed their theories of communism. Indians have been disproportionally involved in every war America has fought since its first, including one we're fighting now: on July 27, 2007, the last soldiers of Able Company 2nd-136th Combined Arms battalion returned home to Bemidji, Minnesota, after serving twenty-two months of combat duty in Iraq. At the time Able Company was the most deployed company in the history of the Iraq War and was also deployed in Afghanistan and Bosnia. Some of the members of Able Company are Indians from reservations in northern Minnesota.

5 Despite how *involved* in America's business Indians have been, most people will go a lifetime without ever knowing an Indian or spending any time on an Indian reservation. Indian land makes up 2.3 percent of the land in the United States. We number slightly over 2 million (up significantly from not quite 240,000 in 1900). It is pretty easy to avoid us and our reservations. Yet Americans are captivated by Indians. Indians are part of the story that America tells itself, from the first Thanksgiving to the Boston Tea Party up through Crazy Horse, the Battle of the Little Bighorn, and Custer's Last Stand.

1: professional football player who was a quarterback in the National Football League

2: Karl Marx and Friedrich Engels, nineteenth-century German philosophers who cowrote *The Communist Manifesto*

3. In a 2022 interview with *People* magazine promoting her program to empower young girls through sport, professional tennis player and mental health advocate Naomi Osaka said: "For me, the biggest lesson I've learned is to try to be present in each moment. It's easy to lose sight of how far you've come, but I've been prioritizing trying to live in the moment and enjoy the journey."

Write an essay that argues your position on the extent to which Osaka's claim about embracing the present moment is valid.

In your response you should do the following:

- Respond to the prompt with a thesis that presents a defensible position.
- Provide evidence to support your line of reasoning.
- Explain how the evidence supports your line of reasoning.
- Use appropriate grammar and punctuation in communicating your argument.

STOP

END OF EXAM