



FlinnPREP™ for Practice Exam 1

Untimed Free Response

1. The Florida panther is an endangered species that lives in the forests and swamps of south Florida. For several years, researchers have positioned a trail camera in a known panther habitat to document the number of unique individuals living in the area. The trail camera data are listed in the chart shown.

Year	Number of Panthers
2012	20
2013	15
2014	22
2015	33
2016	40
2017	36

- (A) Plot the trail camera data on the following grid. Be sure to correctly label the axes. (2 points)
- (B) Calculate the percentage increase in the number of panthers photographed from 2013 to 2016. Show all work. (2 points)
- (C) The panther photos taken in 2012 represented a 25% decrease from 2011. Calculate how many panthers were photographed in 2011. Show all work. (2 points)
- (D) Populations of endangered species take long periods of time to recover. Describe two qualities of an endangered species that contribute to this. (2 points)
- (E) Discuss one pro and one con for saving an endangered species either from an environmental perspective or economic perspective. (2 points)

2. Your community is deciding on whether to harvest the trees in the local old-growth forest. They have hired you as an environmental consultant. The community leaders have asked for your input on the following items.

- (A) Describe two different methods that could be used to harvest the timber.
- (B) Explain one benefit for each method you described.
- (C) Explain one drawback to each method you described other than the loss of trees.
- (D) Describe two ecological services provided by forests other than oxygen production.
- (E) Identify two policies or items of legislation that protect forests that might prevent the harvest of this forest.

3. Urban heat islands are developed areas that are warmer than the adjacent rural areas. On average, the developed area can be 1.8° to 5.4° F warmer compared to rural areas, and during evenings, the difference can be as much as 22° F.

- (A) Describe two methods cities are using to reduce the heat island effect. (2 Points)
- (B) Explain one beneficial impact of heat islands. (1 Point)
- (C) The extensive use of hard, nonporous surfaces in cities also increases surface water pollution. Identify two specific surface water pollutants that could be attributed to the expanded use of nonporous materials. (2 Points)
- (D) Tall buildings create artificial canyons in which air pollutants are unable to disperse, resulting in an increased formation of ground-level ozone, or smog. Photochemical smog is composed of several different air pollutants. Identify one primary pollutant and the secondary air pollutant it forms, and identify the atmospheric substance other than ultraviolet radiation with which the primary pollutant reacts to form the secondary air pollutant. (3 Points)
- (E) Describe two ecological issues of heat islands other than trapping heat and the pollution associated with using hard nonporous building materials. (2 Points)

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📍 P.O. Box 219
Batavia, IL 60510

☎ 800-452-1261

☎ 866-452-1436

✉ flinn@flinnsci.com

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