

Logical fallacies

Working with a partner, please try to solve these problems. There's a catch: only one partner may see the problems. This person should read the problems and possible solutions aloud. The second partner should listen carefully to the problems and possible solutions, and then reason aloud to try to solve the problem. The first partner may only listen and record the answer.

1. It is difficult to keep deep wounds free of bacteria. Even strong antibiotics fail to kill the bacteria that live in such wounds. However, many physicians have succeeded in eliminating bacteria from deep wounds by packing the wound with a sweet substance like sugar.

Which one of the following, if true, most helps to explain why treating deep wounds with sugar as described above is successful?

- (A) Bacteria that live in deep wounds thrive in a moist environment, and sugar has a dehydrating effect.
- (B) Sugar that is nearly pure is readily available for use in medical treatments.
- (C) Many kinds of bacteria can use sugar as a nutrient and will reproduce rapidly when sugar is available to them.
- (D) Some foods that contain sugar can weaken the effects of certain antibiotics.
- (E) Strong antibiotics were developed only recently, but the use of sugar as a treatment for wounds dates back to ancient times.

2. Fines levied against those responsible for certain environmentally damaging accidents are now so high that it costs a company responsible for such an accident more to pay the fine than it would have cost to adopt measures that would have prevented the accident. Therefore, since businesses value their profits, those that might have such accidents will now install adequate environmental safeguards.

Which one of the following, if true, most seriously weakens the argument?

- (A) Businesses generally greatly underestimate the risk of future accidents.
- (B) Businesses are as concerned with long-term as they are with short-term strategies for maximizing profits.
- (C) Businesses generally do the environmentally "right" thing only if doing so makes good business sense.
- (D) Businesses treat fines that are levied against them as an ordinary business expense.
- (E) Businesses are leaning to exploit the public's environmental awareness in promoting themselves.

3. The formation of hurricanes that threaten the United States mainland is triggered by high atmospheric winds off the western coast of Africa. When abundant rain falls in sub-Saharan Africa, hurricanes afterward hit the United States mainland with particular frequency. Therefore, the abundant rains must somehow promote the ability of the winds to form hurricanes.

Which one of the following arguments contains a flaw that is most similar to one in the argument above?

- (A) People who exercise vigorously tend to sleep well. Therefore, people who exercise vigorously tend to be healthy.
- (B) Cars drive faster on long city blocks than on short city blocks. Long blocks are thus more dangerous for pedestrians than short blocks.
- (C) Many people who later become successful entrepreneurs played competitive sports in college. Therefore, playing competitive sports must enhance a person's entrepreneurial ability.
- (D) The blossoms of the chicory plant close up in full sun. Therefore, the chicory plant's blossoms must open up in the dark.
- (E) Events in Eastern Europe can affect the political mood in Central America. Therefore, liberalization in Eastern Europe will lead to liberalization in Central America.

4. Some of the most prosperous nations in the world have experienced a pronounced drop in national savings-rates - the percentage of after-tax income an average household saves. This trend will undoubtedly continue if the average age of these nations' populations continues to rise, since older people have fewer reasons to save than do younger people.

Which one of the following indicates an error in the reasoning leading to the prediction above?

- (A) It fails to specify the many reasons younger people have for saving money, and it fails to identify which of those reasons is the strongest.
- (B) It assumes that a negative savings rate - the result of the average household's spending all of its after-tax income as well as some of its existing savings - cannot ever come about in any nation.
- (C) It fails to cite statistics showing that the average age of the population of certain nations is rising.
- (D) It only takes into account the comparative number of reasons older and younger people, respectively, have for saving, and not the comparative strength of those reasons.
- (E) It uses after-tax income as the base for computing the national savings rate without establishing by argument that after-tax income is a more appropriate base than before-tax income.

5. Several cosmetics firms are committed to the active development, validation, and adoption of new product-safety tests that use cultures of human cells. They argue that the new tests serve to reduce the need for tests on live animals.

The statements above most strongly support which one of the following conclusions?

- (A) The pressure on cosmetics firms to cease conducting experiments that use live animals was initiated by groups of social activists.
- (B) Consumers are no more likely to buy products whose safety was tested on cultures of human cells than they are to buy products whose safety was tested on animals.
- (C) Financial consultants for the cosmetics firms believe that using human cell cultures rather than live animals to test product safety will cost the firm less in actual product-development costs.
- (D) Researchers in the cosmetics firms believe that fewer tests of products will be needed if cell cultures rather than live animals are used.
- (E) Managers of the cosmetics firms believe that it is better for their firms not to perform tests on live animals if there is an acceptable alternative way of determining product safety.

6. In the United States proven oil reserves - the amount of oil considered extractable from known fields - are at the same level as they were ten years ago. Yet over this same period no new oil fields of any consequence have been discovered, and the annual consumption of domestically produced oil has increased.

Which one of the following, if true, best reconciles the discrepancy described above?

- (A) Over the past decade the annual consumption of imported oil has increased more rapidly than that of domestic oil in the United States.
- (B) Conservation measures have lowered the rate of growth of domestic oil consumption from what it was a decade ago.
- (C) Oil exploration in the United States has slowed due to increased concern over the environmental impact of such exploration.
- (D) The price of domestically produced oil has fallen substantially over the past decade.
- (E) Due to technological advances over the last decade, much oil previously considered unextractable is now considered extractable.

7. Train service suffers when a railroad combines commuter and freight service. By dividing its attention between its freight and commuter customers, a railroad serves neither particularly well. Therefore, if a railroad is going to be a successful business, then it must concentrate exclusively on one of these two markets.

For the argument to be logically correct, it must make which one of the following assumptions?

- (A) Commuter and freight service have little in common with each other.
- (B) The first priority of a railroad is to be a successful business.
- (C) Unless a railroad serves its customers well, it will not be a successful business.
- (D) If a railroad concentrates on commuter service, it will be a successful business.
- (E) Railroad commuters rarely want freight service as well.