

APOLLO

Greenhouse effect

SL

Physics

First assessment 2025

6 questions | questions

8. What is a primary cause of the enhanced greenhouse effect?
- A. Melting of ice at Earth's poles
 - B. Increases in volcanic activity
 - C. Deforestation of rain forests
 - D. Burning of fossil fuels

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Turn over
4445-0710

7. The albedo of the atmosphere above a small region on the Earth's surface is 0.25. The solar constant is S .

What is the incoming intensity of solar radiation incident on this region when the Sun is directly overhead?

A. $\frac{3S}{16}$

B. $\frac{S}{4}$

C. $\frac{3S}{4}$

D. S

9. A student makes three statements about Earth's albedo.

- I. It varies daily.
- II. It depends on latitude.
- III. It depends on cloud formation.

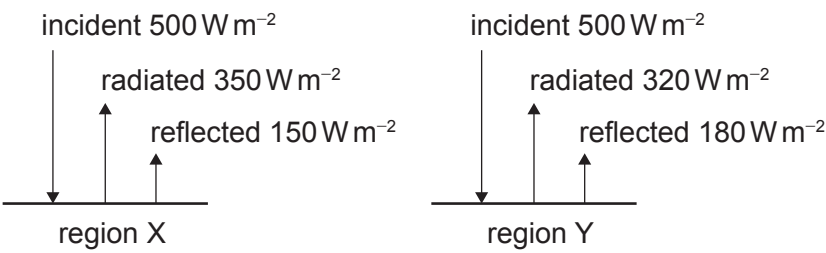
Which of the statements are correct?

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

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Turn over
4445-0144

8. The diagram shows the incident, radiated and reflected intensities of the solar radiation for two regions X and Y on the surface of Earth. X and Y have the same surface temperature.



Which region has a greater albedo, and which region has a greater emissivity?

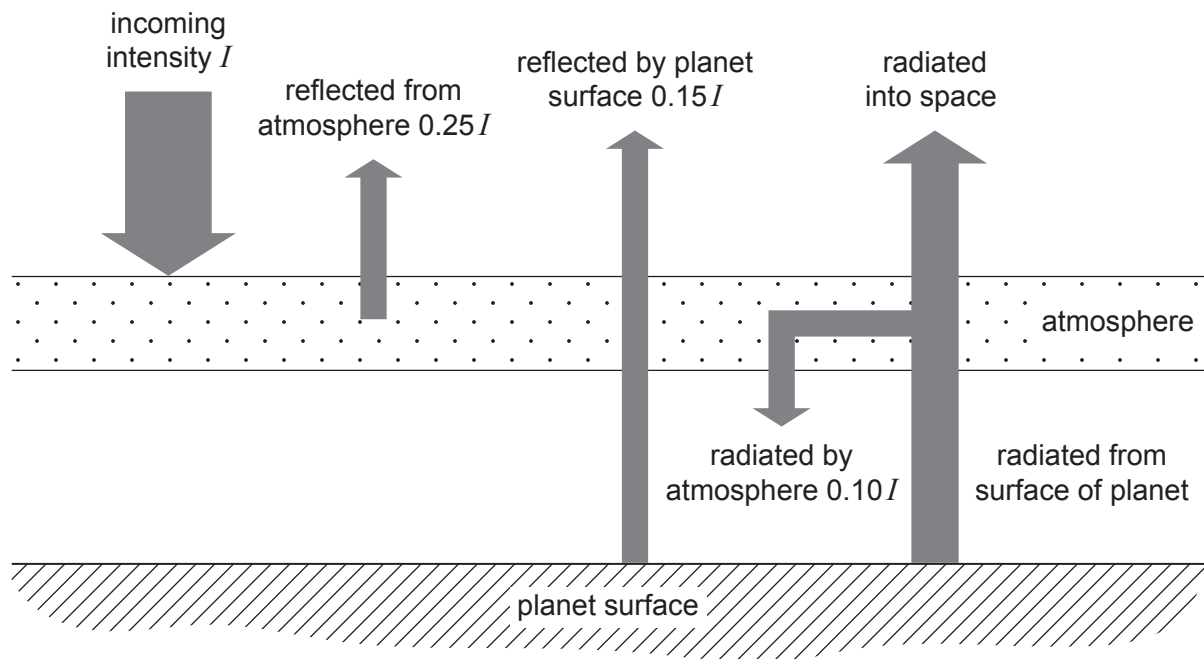
	Greater albedo	Greater emissivity
A.	X	X
B.	Y	X
C.	X	Y
D.	Y	Y

9. Which process involving gas molecules in the Earth's atmosphere is the main cause of the greenhouse effect?
- A. Reflection of incoming solar radiation
 - B. Absorption and re-radiation of incoming solar radiation
 - C. Reflection of outgoing infrared radiation
 - D. Absorption and re-radiation of outgoing infrared radiation

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Turn over
0020—0710

8. The energy balance model of a planet's climate is shown. The reflected and radiated intensities are given in terms of the incident incoming intensity I .



What is the radiated intensity from the surface of the planet?

- A. $0.40 I$
- B. $0.50 I$
- C. $0.70 I$
- D. $1.10 I$