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ENVIRONMENTAL MANAGEMENT

8291/12

Paper 1 Lithosphere and Atmosphere

May/June 2015

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO NOT WRITE IN ANY BARCODES.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

Section A

Answer **all** questions.
Write your answers in the spaces provided on the question paper.

Section B

Answer **one** question from this section.
Answer the question on the separate answer paper provided.

At the end of the examination,

1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid opposite.

| | For Examiner's Use |
|------------------|--------------------------|
| Section A | / |
| 1 | |
| 2 | |
| Section B | / |
| | |
| Total | |

This document consists of **10** printed pages and **2** blank pages.

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1 (a) Fig. 1.1 shows a map of South Island, New Zealand and the position of the Alpine Fault. The Pacific Plate slides in a south westerly direction relative to the Indo-Australian Plate.

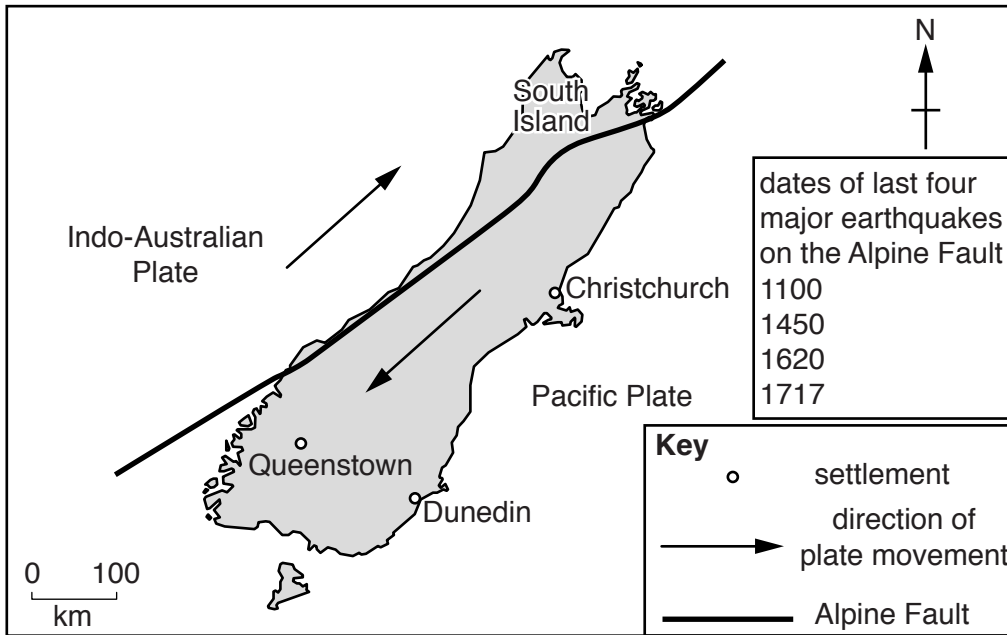


Fig. 1.1

- (i) With reference to Fig. 1.1, suggest why earthquakes occur along the Alpine Fault.

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- (ii) With reference to Fig. 1.1, suggest why there is a high probability that a major earthquake will occur along the Alpine Fault in the near future.

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(iii) Describe a method scientists use to measure the magnitude of an earthquake.

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(b) Fig. 1.2 shows an area at risk from a future earthquake on the Alpine Fault.

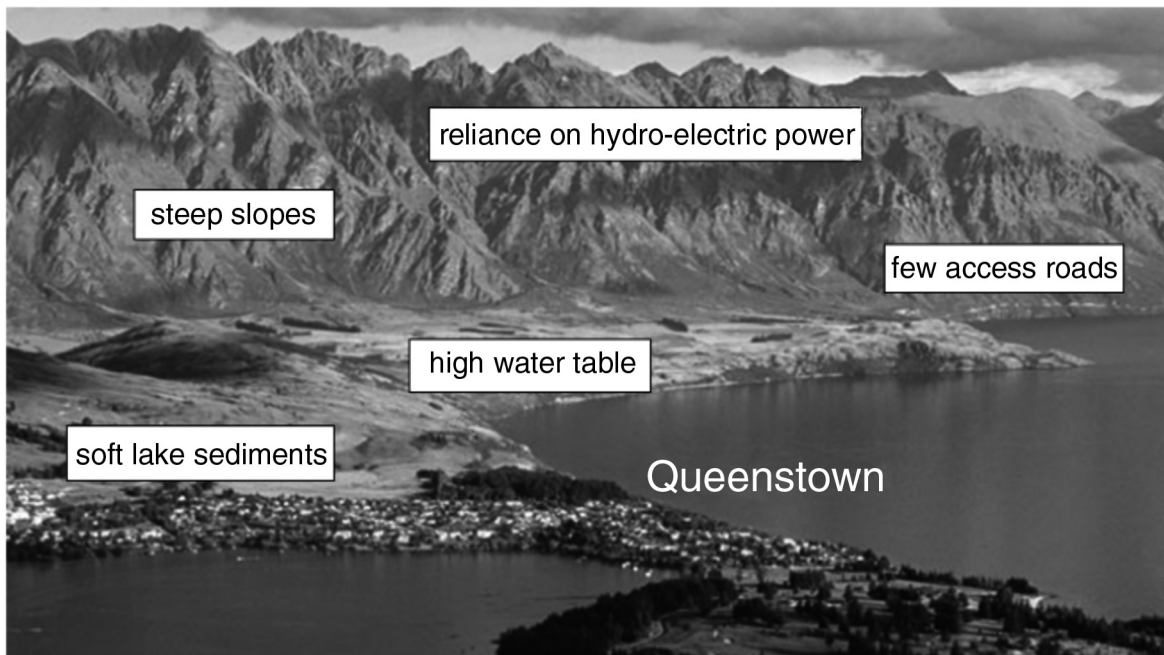


Fig. 1.2

- (i) With reference to Fig. 1.2, suggest what effects a major earthquake may have on the population living in the area.

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- (ii) Queenstown is a major tourist centre in South Island, New Zealand, attracting around two million visitors a year. Describe plans that could be put in place to manage a future earthquake event.

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[Total: 20]

2 Fig. 2.1 shows how ground level ozone pollution is often located in and around urban areas.

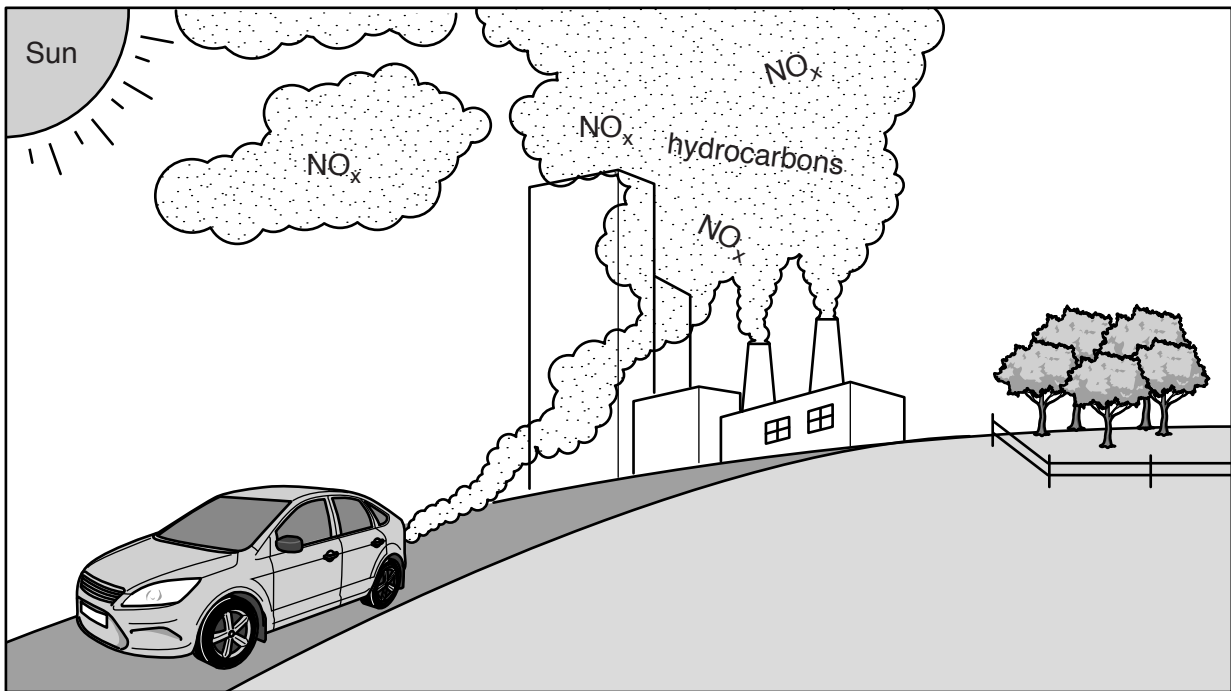


Fig. 2.1

(a) (i) With reference to Fig. 2.1, describe **two** ways in which human activities contribute to the build-up of ground level ozone.

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(ii) State **two** harmful effects of ground level ozone.

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(iii) With reference to Fig. 2.1, give **one** reason why anticyclonic weather conditions encourage the formation of high concentrations of ground level ozone.

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(iv) Suggest why ground level ozone also affects the rural areas surrounding an urban area.

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..... [1]

Fig. 2.2 shows air pollution in the Los Angeles basin in California, United States of America.

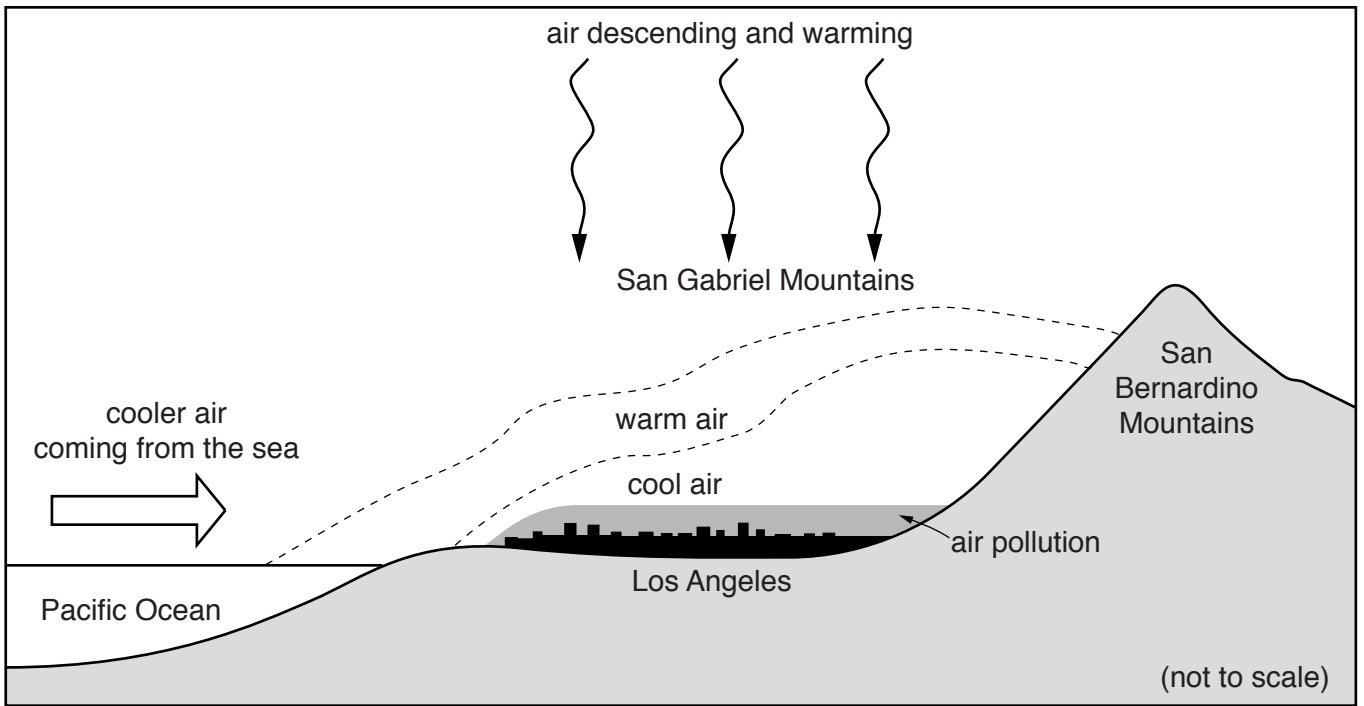


Fig. 2.2

(b) With reference to Fig. 2.2, outline **two** natural conditions that contribute to the high levels of atmospheric pollution experienced in the Los Angeles basin.

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(c) Describe and evaluate **three** measures a city like Los Angeles could take to reduce air pollution.

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[Total: 20]

Section B

Answer **one** question from this section.

- 3 Fig. 3.1 shows a slope system.

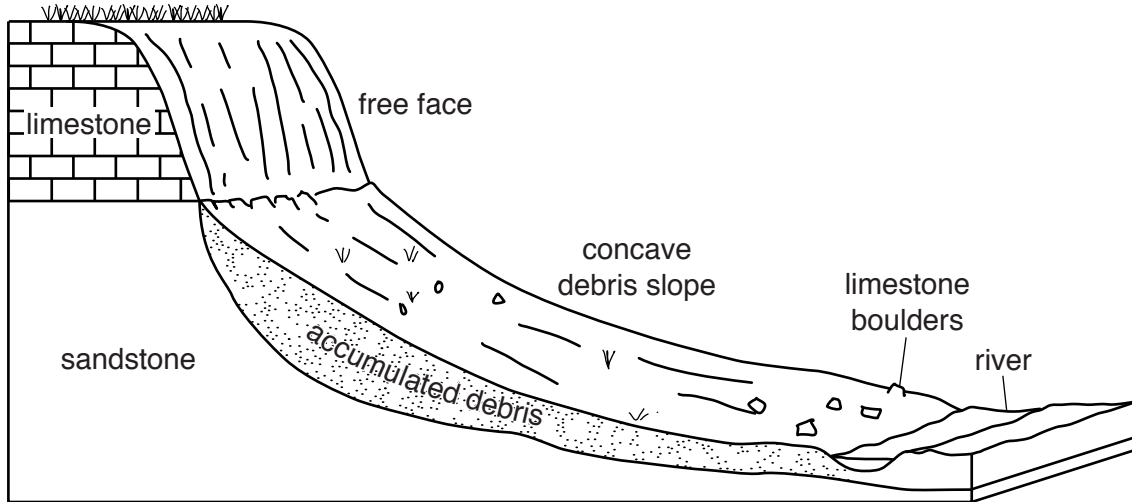


Fig. 3.1

- (a) With reference to Fig. 3.1, outline the factors and processes which determine the rate of accumulation of debris at the foot of the slope. [10]
- (b) With reference to examples with which you are familiar, explain how mass movements can be triggered by human actions and suggest how these movements may be controlled or prevented. [30]

[Total: 40]

- 4 Fig. 4.1 shows a possible future, in which Europe's demands for energy are met by a network connecting renewable energy projects throughout the continent and beyond.

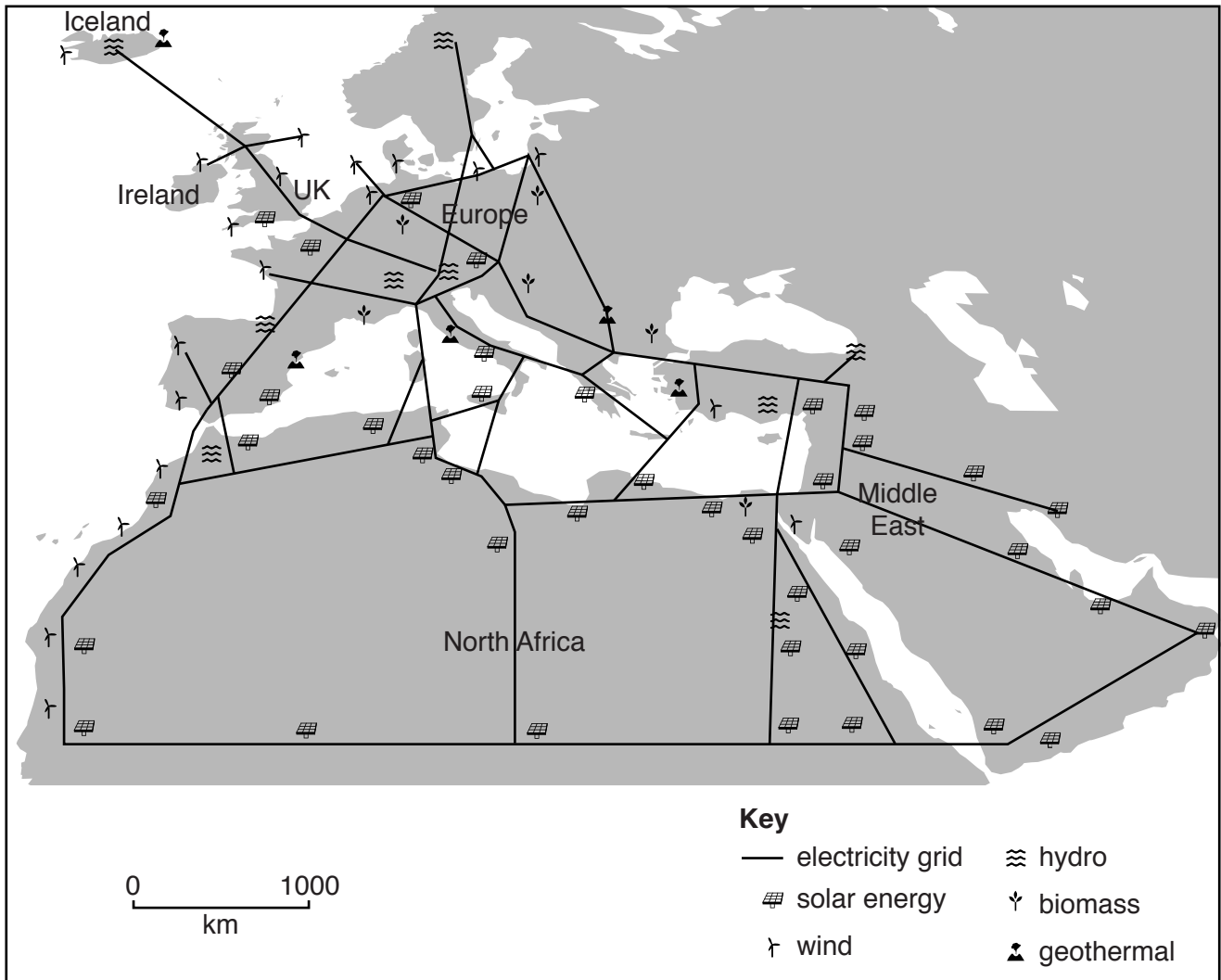


Fig. 4.1

- (a) With reference to Fig. 4.1, briefly discuss the advantages and disadvantages of the proposed network. [10]
- (b) Assess the view that fossil fuels will continue to play a major role in supplying the world's energy needs, despite the environmental advantages of renewable and alternative sources of energy. [30]

[Total: 40]

5 Fig. 5.1 shows the location and seasonal variations in climate in Lagos, a city in West Africa.

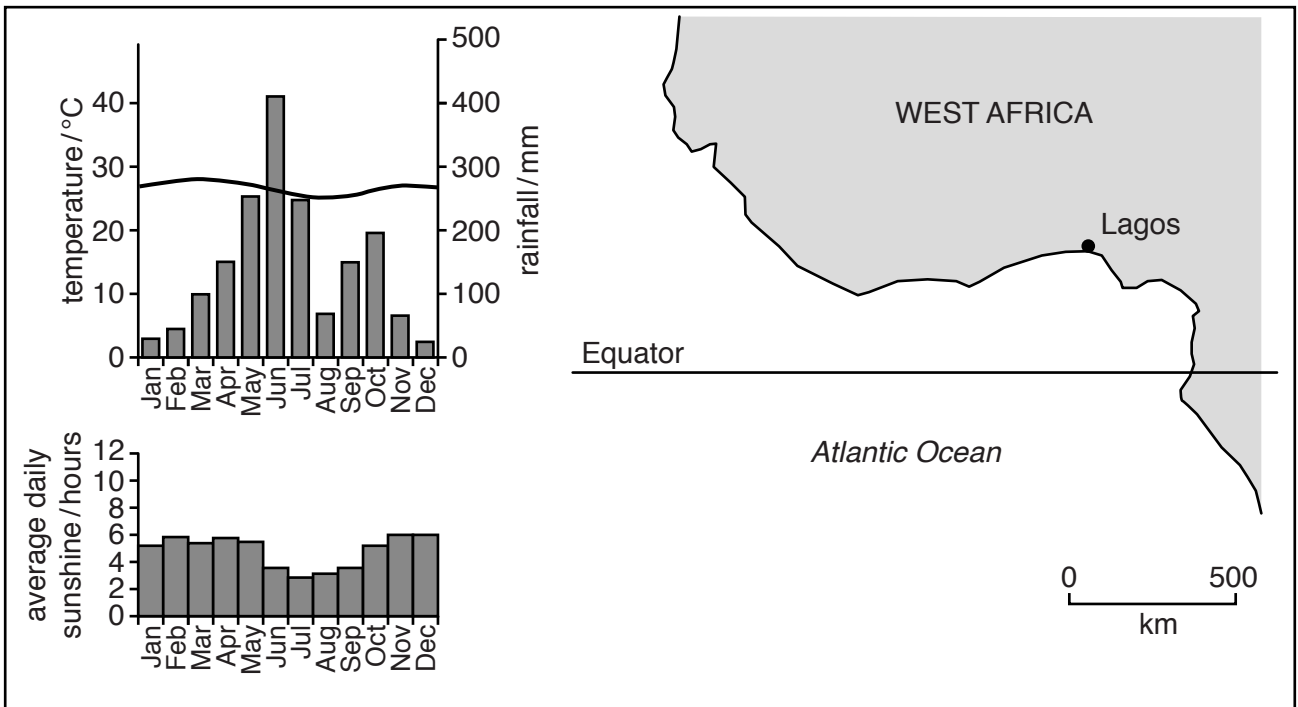


Fig. 5.1

- (a) With reference to Fig. 5.1, describe and explain the seasonal variations in the climate shown. [10]
- (b) Drought is a frequent occurrence in many parts of the world. With reference to examples with which you are familiar, explain the causes of drought and suggest the likely consequences of climate change for drought-affected areas. [30]

[Total: 40]

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