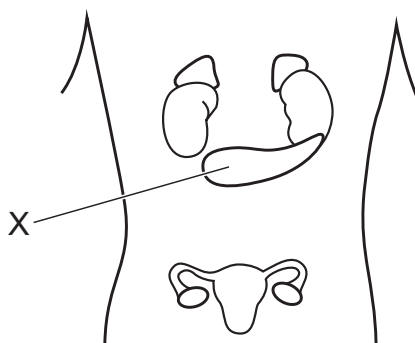


20 Which effect does adrenaline have on blood glucose concentration and pulse rate?

	blood glucose concentration	pulse rate
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

23 The diagram shows the position of some of the human endocrine glands.



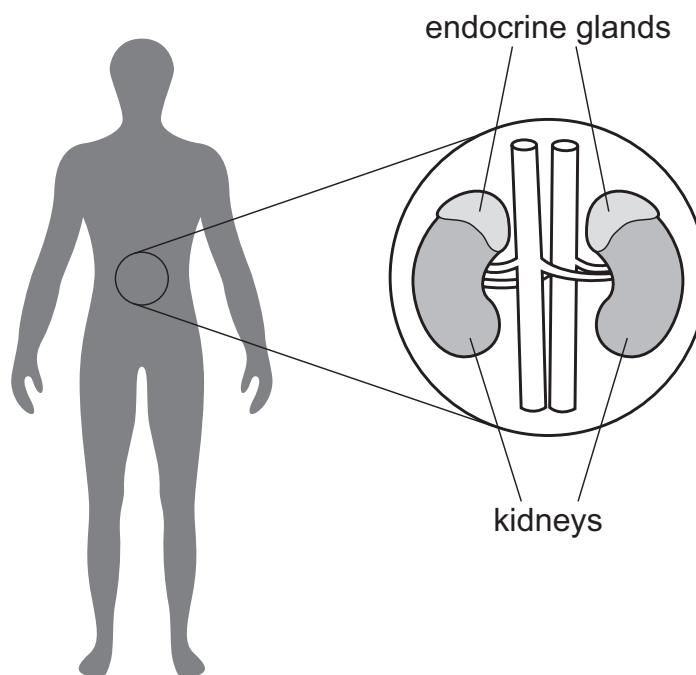
Which hormone is secreted by X?

- A** adrenaline
- B** insulin
- C** oestrogen
- D** testosterone

24 Which row shows the correct speed and duration for the type of control?

	type of control	speed of action	duration of effect
A	hormonal	fast	short
B	hormonal	slow	long
C	nervous	fast	long
D	nervous	slow	short

23 The diagram shows the positions of two endocrine glands in the human body.



What is a response of the body to the hormone released from these glands?

- A** a decrease in heart rate
- B** a decrease in blood glucose concentration
- C** an increase in pupil diameter
- D** the development of secondary sexual characteristics

25 Which organ produces glucagon?

- A** adrenal gland
- B** liver
- C** ovary
- D** pancreas

25 Which hormones increase the blood glucose concentration in humans?

- A** adrenaline and glucagon
- B** adrenaline and insulin
- C** glucagon only
- D** insulin only

3 (a) Complete the sentences about the control of blood glucose concentration.

Blood glucose concentration increases after a person eats a meal containing carbohydrates.
This causes the to release insulin. Insulin causes the to remove glucose from the blood and convert it into

The control of blood glucose concentration is an example of [4]

(b) Outline the treatment of type 1 diabetes.

.....
.....
.....
.....
..... [2]

- (c) A scientist investigated the effect of an injection of glucose solution on blood glucose concentration in healthy people. The injection was given at 0 minutes.

Fig. 3.1 shows the results.

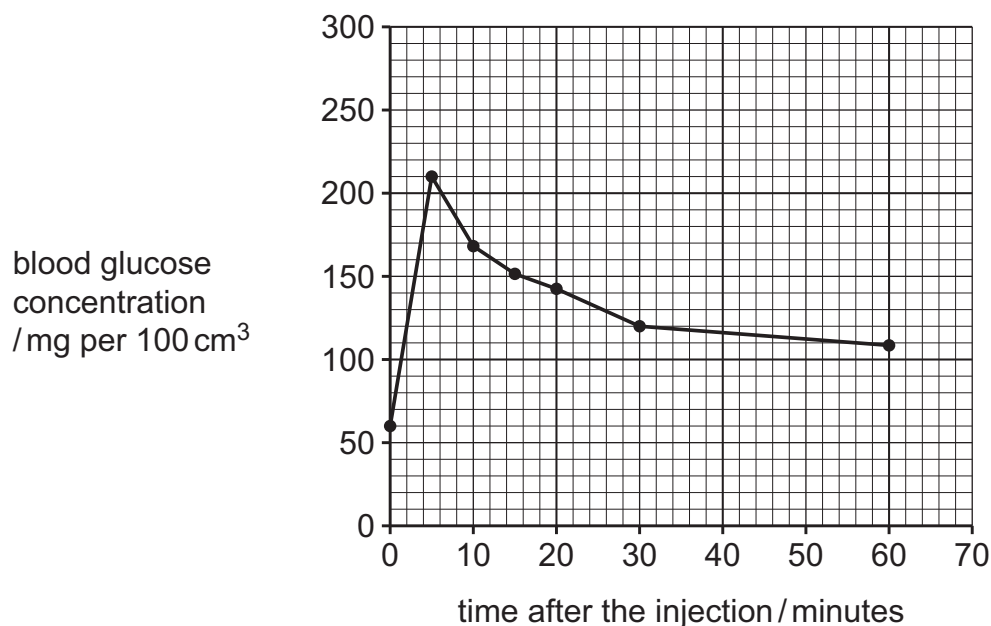


Fig. 3.1

Calculate the percentage change in the blood glucose concentration from 5 minutes after the injection to 30 minutes after the injection.

Give your answer to **two** significant figures.

Space for working.

..... % [3]

- (d) Adrenaline also affects blood glucose concentration.

Suggest how this is an advantage for the “fight or flight” response.

.....
.....
.....
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.....
.....
..... [3]