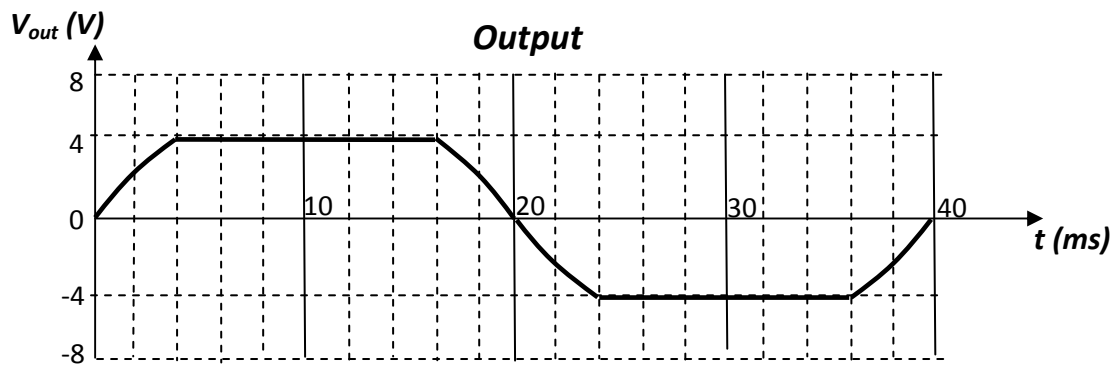
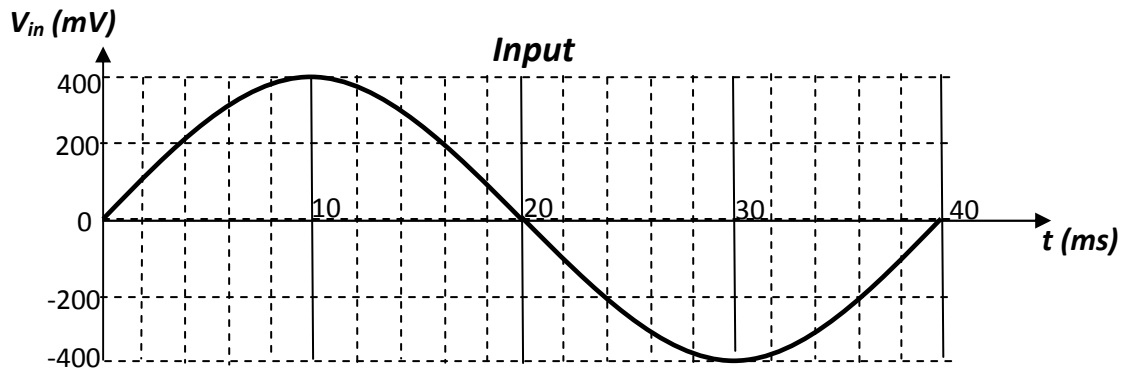


Exam Style Questions – Amplifiers

The following information relates to questions 1-3

The input and output signals of a voltage amplifier are shown below.



Question 1

What is the voltage gain of this amplifier in its linear region?

$$V_{gain} = \frac{V_{out}}{V_{in}}$$

$$V_{gain} = \frac{4}{0.2}$$

$$V_{gain} = 20$$

2 marks

Question 2

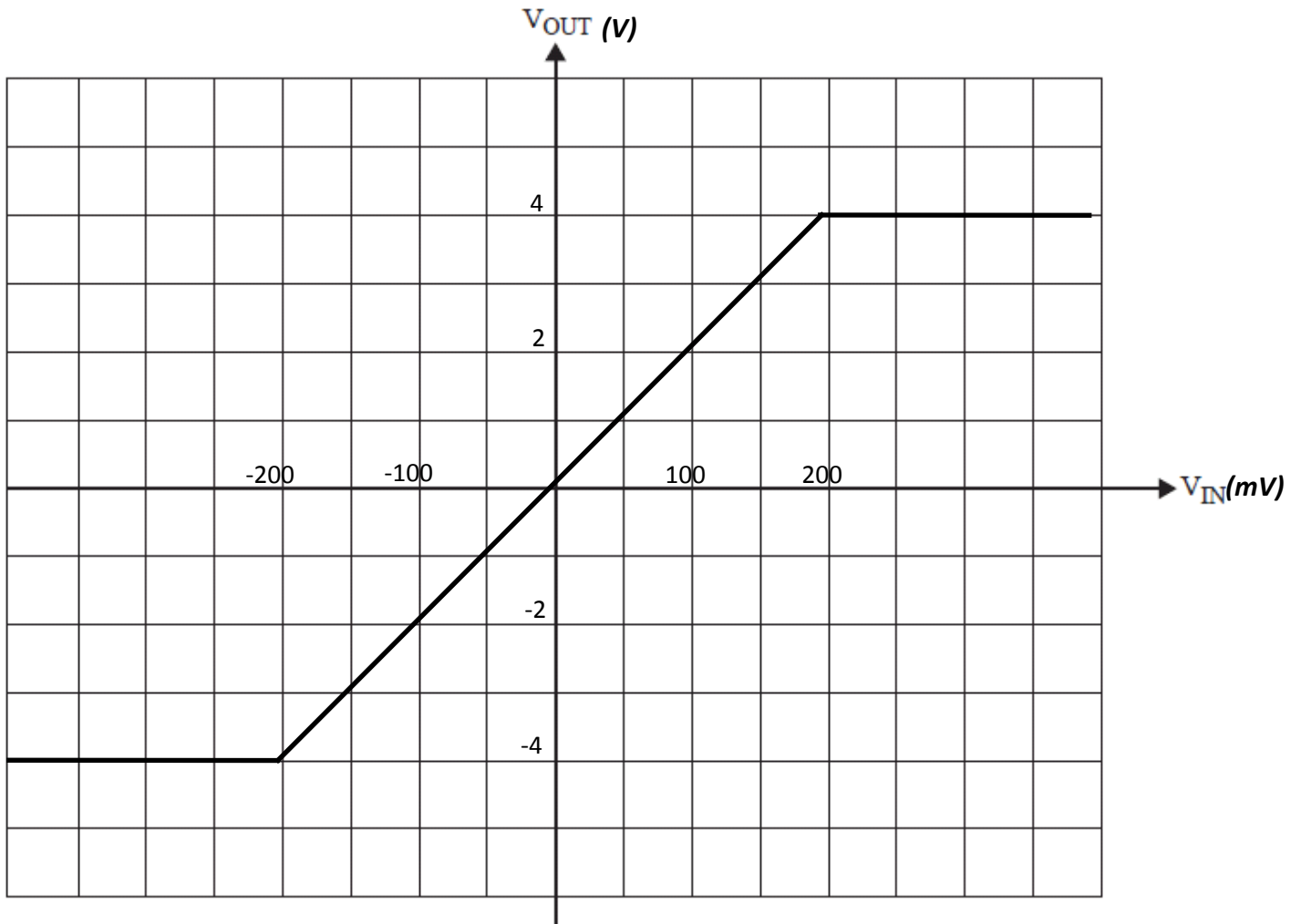
State whether the amplifier is inverting or non-inverting.

Non inverting

1 mark

Question 3

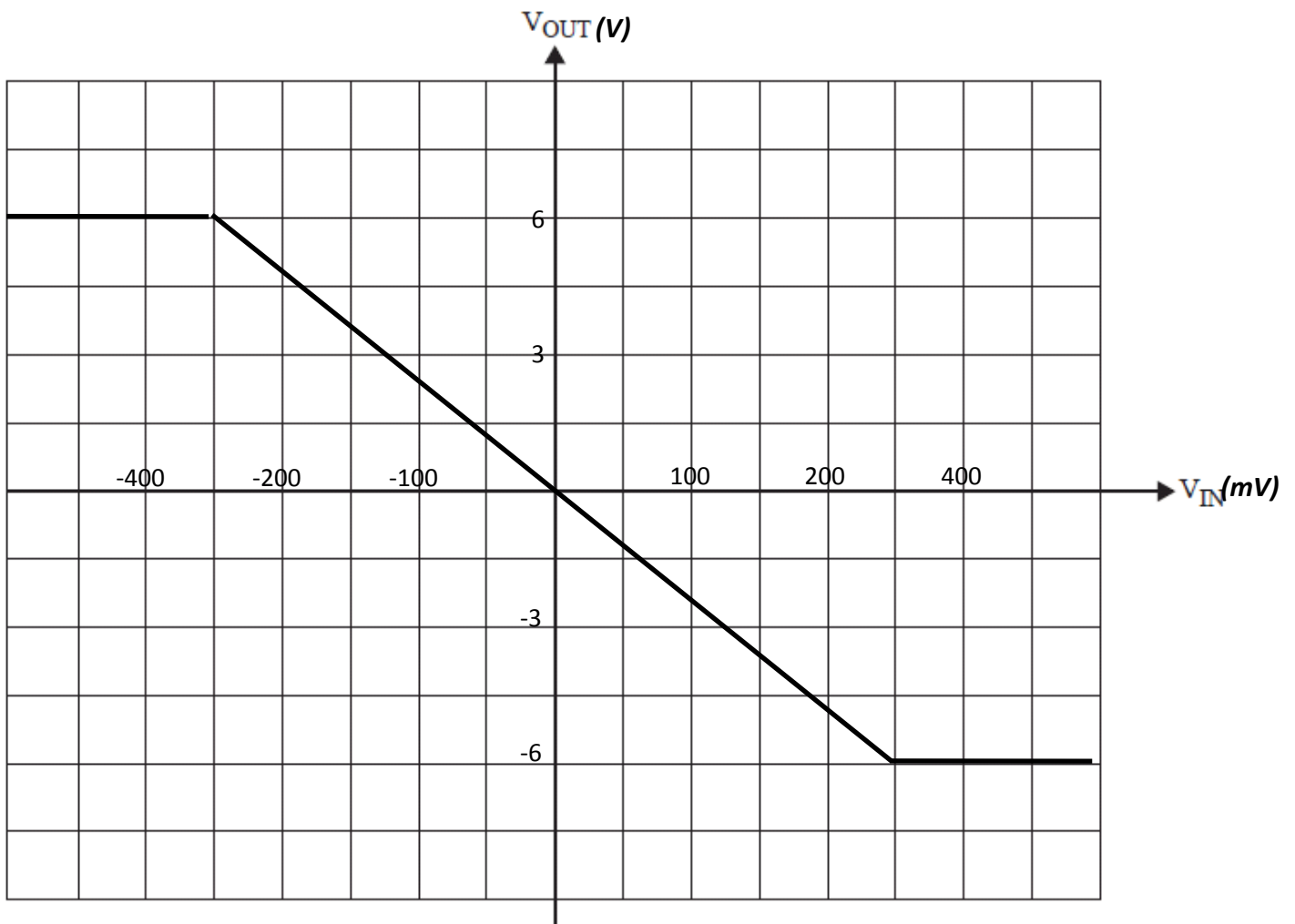
Draw the characteristics of this amplifier on the grid below. Include a scale on both axes.



3 marks

The following information relates to questions 4-6

Below is the voltage characteristic of a voltage amplifier.



Question 4

What is the voltage gain of this amplifier in its linear region?

$$V_{gain} = \frac{V_{out}}{V_{in}}$$

$$V_{gain} = \frac{6}{0.3}$$

$$V_{gain} = 20$$

2 marks

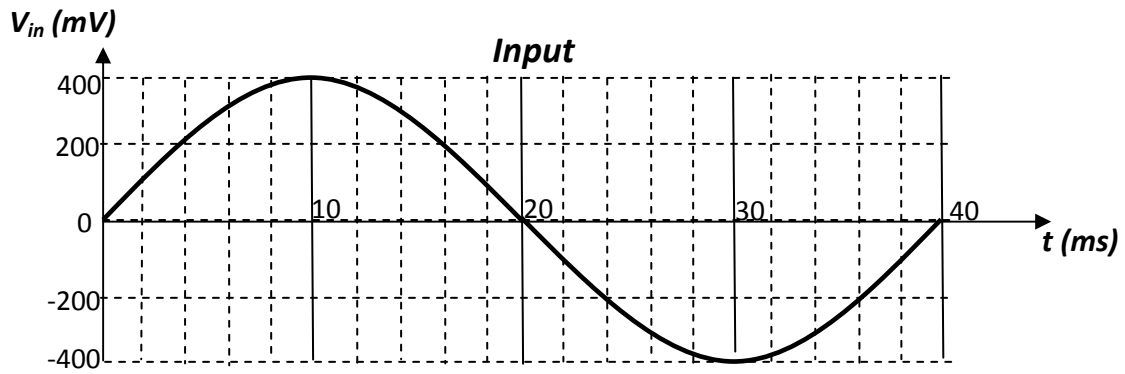
Question 5

State whether the amplifier is inverting or non-inverting.

Inverting

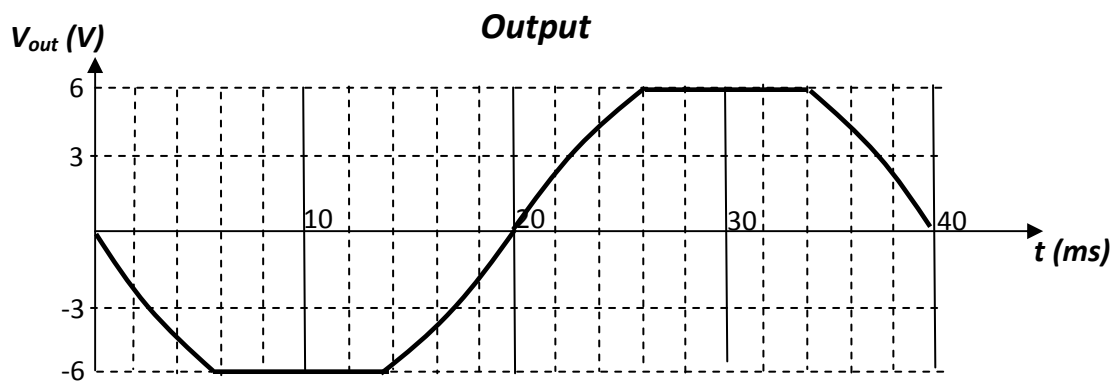
1 mark

The signal below is the input to the amplifier.



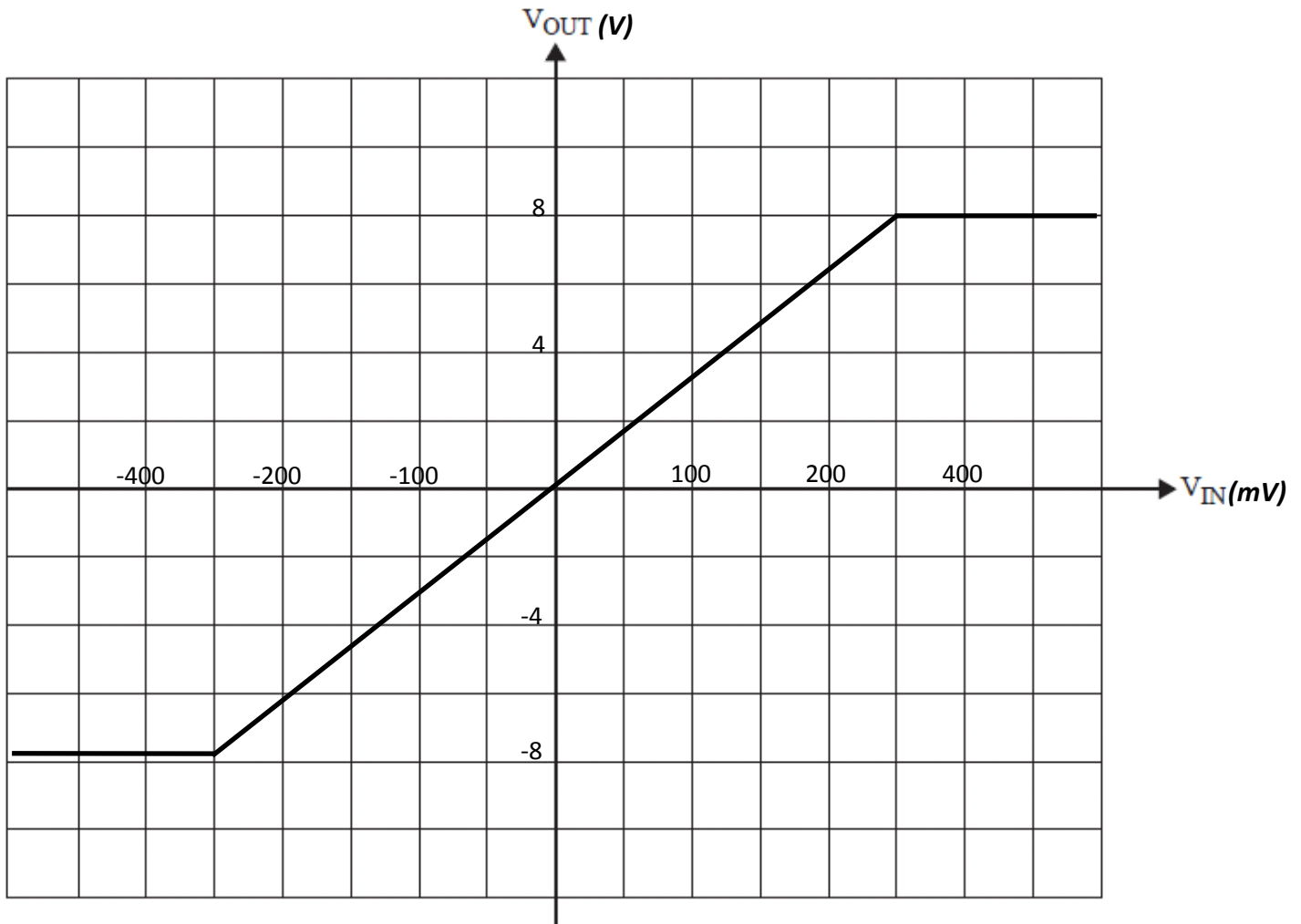
Question 6

Sketch the output signal. Include a scale of the vertical axis.



The following information relates to questions 7-10

Below is the voltage characteristic of a voltage amplifier.



Question 7

What is the voltage gain of this amplifier in its linear region?

$$V_{gain} = \frac{V_{out}}{V_{in}}$$

$$V_{gain} = \frac{8}{0.3}$$

$$V_{gain} = 26.7$$

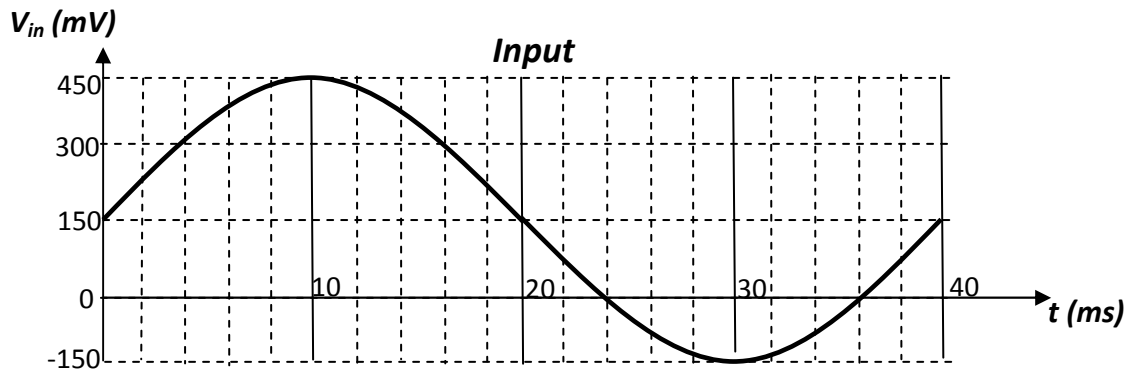
Question 8

State whether the amplifier is inverting or non-inverting.

Non- inverting

1 mark

The signal below is the input to the amplifier.



Question 9

What is the frequency of the input signal?

$$f = \frac{1}{T}$$

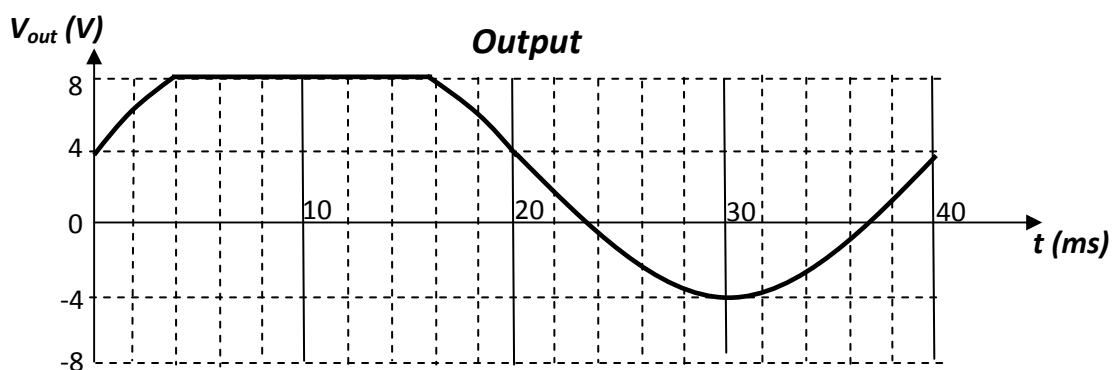
$$f = \frac{1}{0.04}$$

$$f = 25 \text{ Hz}$$

2 marks

Question 10

Sketch the output signal. Include a scale of the vertical axis.



3 marks