(Human activities and climate change)

Q1.a)(2024)

This question is about burning coal.

A power station has four coal-burning furnaces.

Each furnace burns 3000 kg of coal per minute.

Table 1 shows some information about this coal burning power station

Table 1

Number of furnaces in use	Mass of coal burned per minute in kilograms	Mass of sulfur dioxide produced per minute in kilograms	Mass of carbon dioxide produced per minute in kilograms
0	0	0	0
1	3000	100	7000
2	6000	200	14 000
3	9000	300	21 000
4	12 000	400	28 000

Carbon dioxide is a greenhouse gas.

What is the effect on the rate of global climate change of using more furnaces in this power station?

Complete the sentence.

Choose the answer from the box.

[1 mark]

decreases	**stays the same**	**increases**

Use **Table 1**.

The rate of global climate change _____.

Q1.b)(2024)

7000 kg of carbon dioxide are produced when 3000 kg of coal are burned.

Calculate the mass of carbon dioxide produced when 1 kilogram of coal is burned.

[2 marks]

Mass of carbon dioxide = _____kg

Q1.c)(2024)

Complete the sentence.

[1 mark]

Sulfur dioxide causes an environmental effect called acid _____ .

Q1.d)(2024)

Table 1 is repeated below.

Table 1

Number of furnaces in use	Mass of coal burned per minute in kilograms	Mass of sulfur dioxide produced per minute in kilograms	Mass of carbon dioxide produced per minute in kilograms
0	0	0	0
1	3000	100	7000
2	6000	200	14 000
3	9000	300	21 000
4	12 000	400	28 000

Figure 3 shows how the mass of sulfur dioxide produced per minute varies with the mass of coal burned per minute.

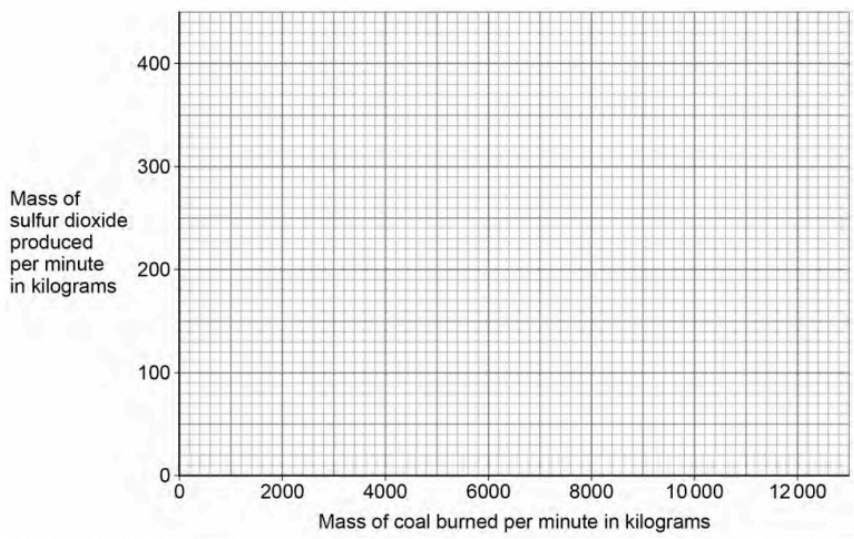
Complete **Figure 3**.

You should:

- plot data from **Table 1** on **Figure 3**
- draw a line of best fit.

[3 marks]

Figure 3



Q1.e)(2024)

Complete the sentence.

Use **Table 1** and **Figure 3**.

[1 mark]

As the mass of coal burned per minute increases, the mass of sulfur dioxide

produced per minute _____ .

Q1.f)(2024)

This power station also releases particulates into the air.

Complete the sentence.

[1 mark]

The release of particulates into the air causes global _____ .