

2

$$e^{2x}(e^{2x} - 8) = 48.$$

[3]

[illegible]

A graph of a function $y = f(x)$ on the interval $[a, b]$. The curve starts at point A on the y -axis and ends at point B on the x -axis. The area under the curve is shaded in light blue.

(a) Show that the x -coordinate of B is $6 \ln 2$. [2]

[illegible]

1

[4]

③

2 (a) Use logarithms to solve the inequality $4^x < 0.05$. Give your answer in the form $x < a$, where the value of a is correct to 3 significant figures. [2]

(b) Solve the inequality $|3x + 8| < 9$. [3]

(c) Hence state the integers that satisfy both of the inequalities in parts (a) and (b). [1]

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6

(a)

[3]

[illegible]

(b)

$y = mx + c$, where m and c are exact constants.

[6]

[illegible]

[illegible]