1   Here is the sketch of a graph.
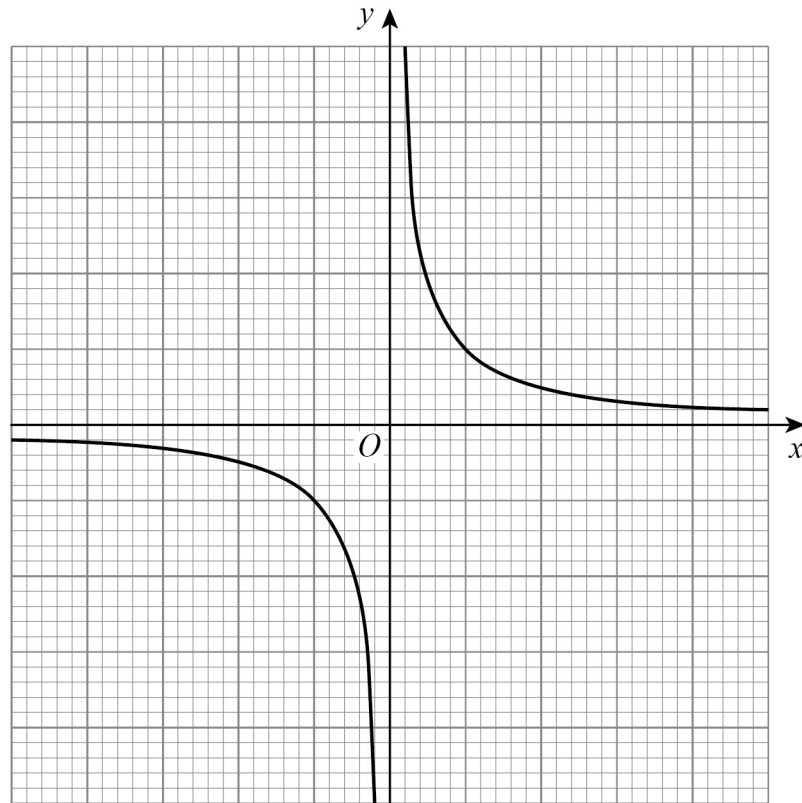
Circle the equation of the graph.

[1 mark]

$$y = x \qquad\qquad y = -x^2 \qquad\qquad y = -x^3 \qquad\qquad y = \frac{1}{x} \qquad (1)$$
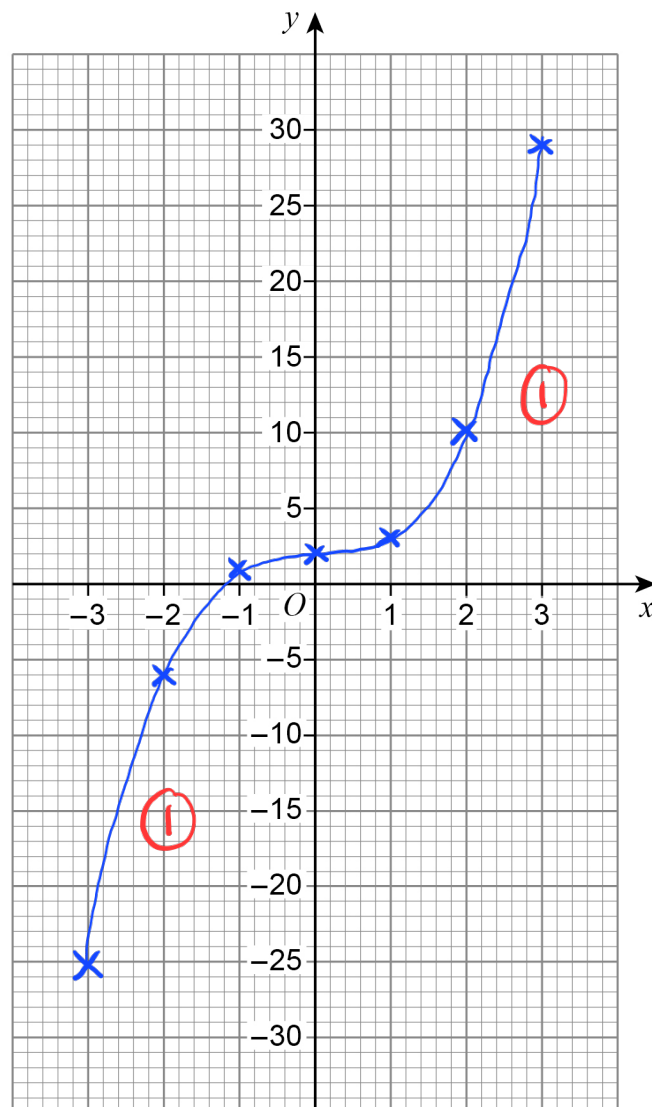
2   A graph has equation $y = x^3 + a$ where a is an integer.

$y = x^3 + 2$

The graph passes through the point (3, 29)

$29 = 3^3 + a$

Draw the graph for values of x from -3 to 3 $\therefore$ $a = 2$ (1)

[3 marks]

x	-3	-2	-1	0	1	2	3
y	-25	-6	1	2	3	10	29

3   Here is a sketch of a graph.
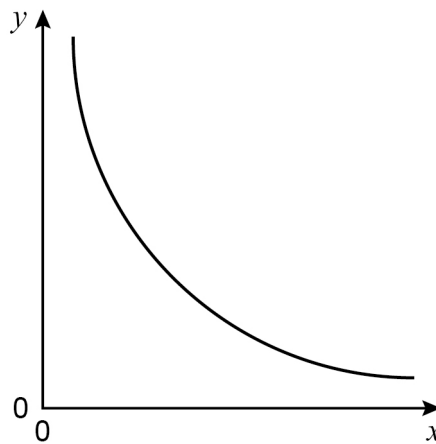
Circle the equation of the graph.

k is a constant.

[1 mark]
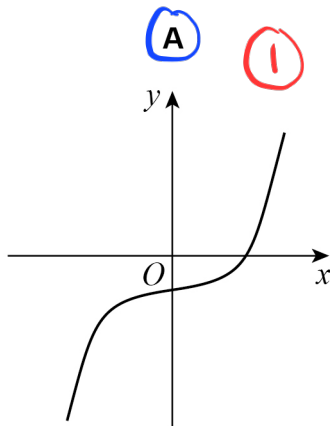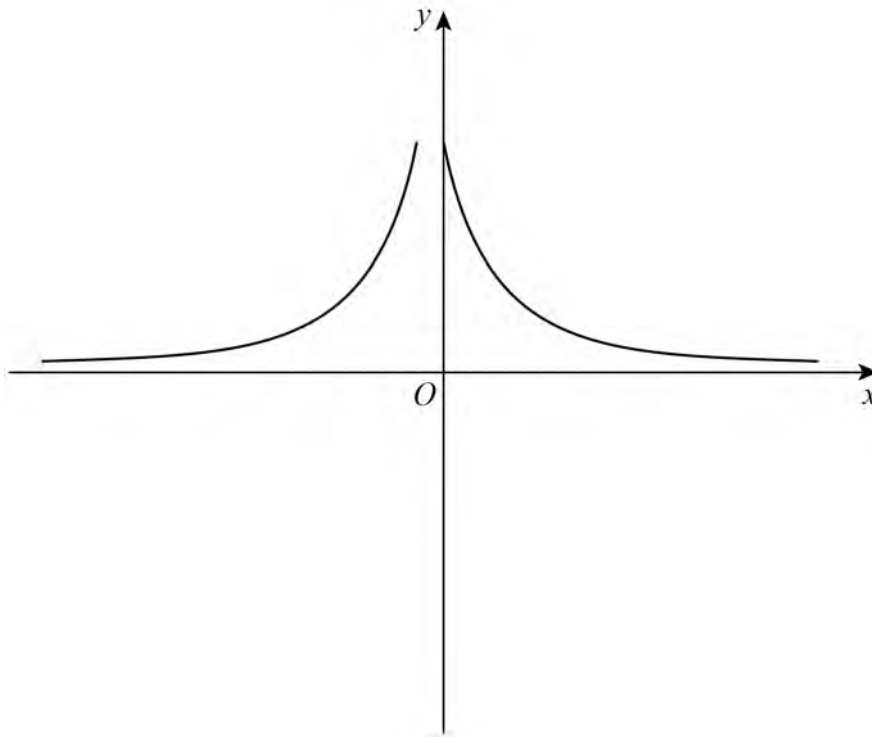
$$y = kx \qquad\qquad y = k + x \qquad\qquad y = k - x \qquad\qquad y = \frac{k}{x}$$

4   Circle the letter of the possible sketch graph of $y = x^3 - 4$

cubic graph with y-intercept **[1 mark]**
= -4

A   ①

(graph: cubic curve increasing through origin region)

B

(graph: upward parabola with vertex below x-axis)

C

(graph: upward parabola with vertex above x-axis)

D

(graph: cubic curve increasing through origin region)

cubic graph with y-intercept **[1 mark]**
= -4
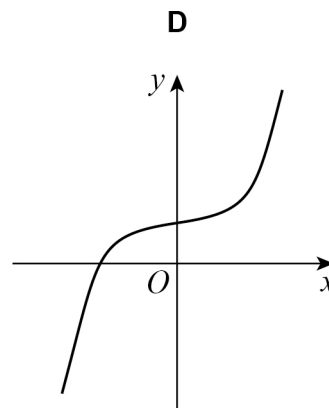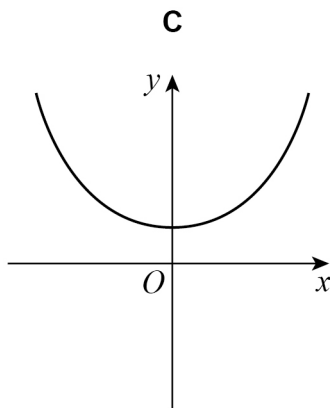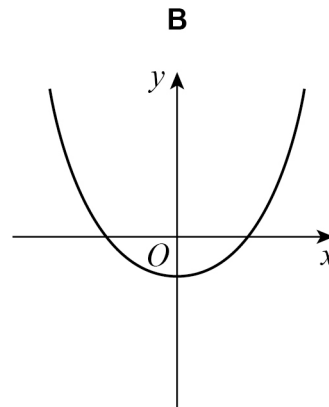
5   Erika tries to sketch the graph $y = \dfrac{1}{x}$ with $x \neq 0$

Make **two** different criticisms of her sketch.

[2 marks]

Criticism 1   The graph touches the y-axis   ①

Criticism 2   The graph on the left of y-axis should be
below x-axis.   ①

6 (a)   Sunil thinks that E and D are linked by the equation $E = \dfrac{36}{D}$

The graph shows the values of D and E for $2 \leqslant D \leqslant 6$
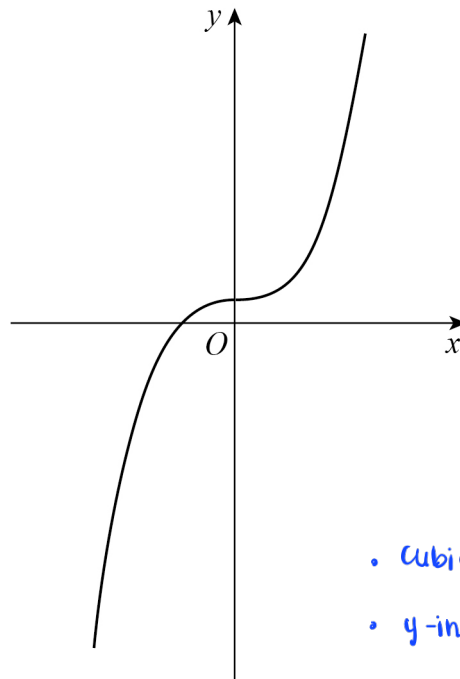

Choose **one** point on the graph and state if Sunil's equation is correct for that point.

[1 mark]

For point $(3, 12)$: $E = \dfrac{36}{3} = 12$ ①

Yes. He is right

7   Here is a sketch of a graph.

- Cubic graph
- y-inter cept positive value

Circle the possible equation of the graph.

[1 mark]

$$y = x^2 + 1 \qquad y = \frac{1}{x} + 1 \qquad \boxed{y = x^3 + 1} \qquad y = 1 - x^2$$