

Unit 24: Graphs of Functions

1. M/J 18/P11/Q23

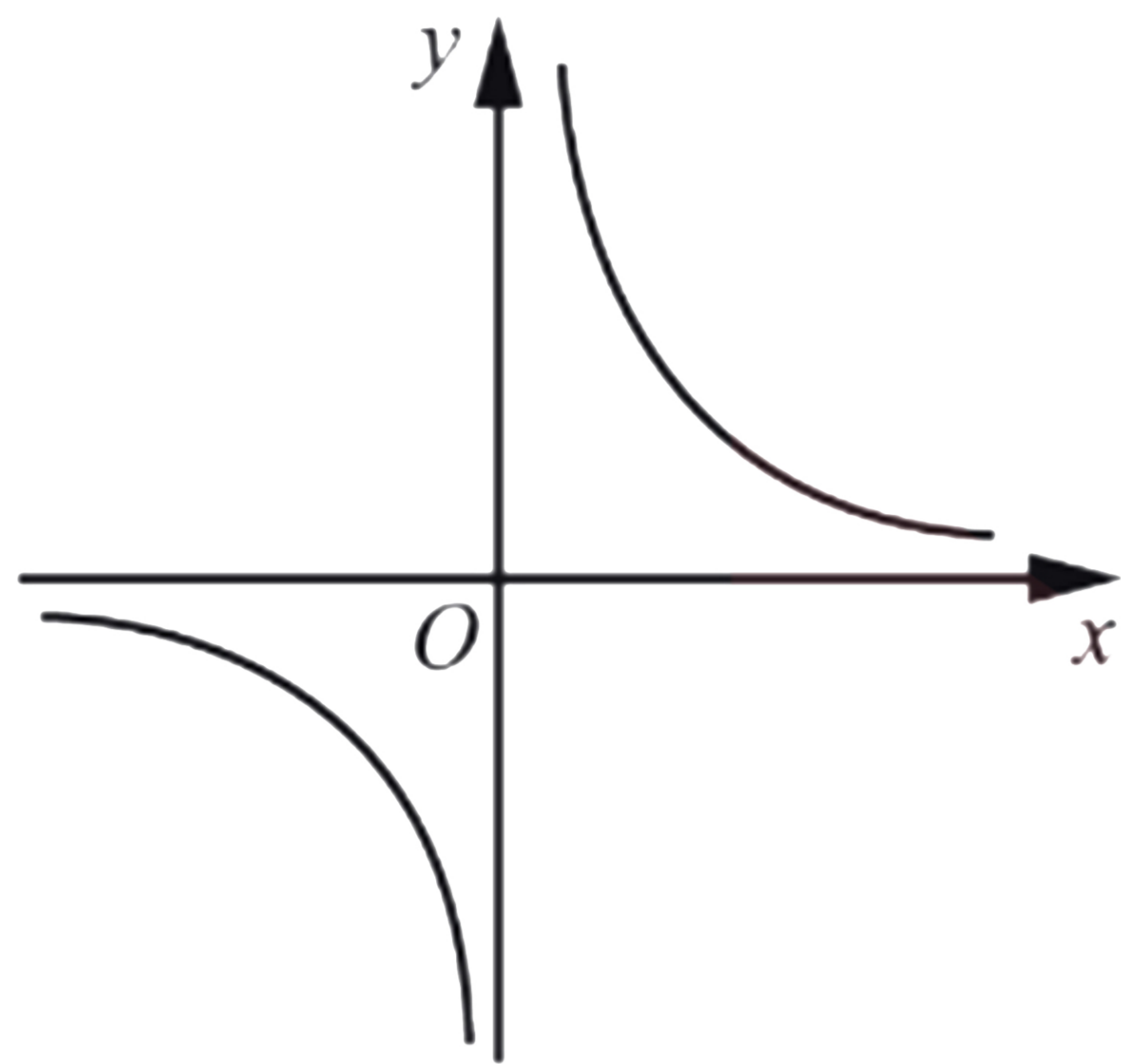


Figure A

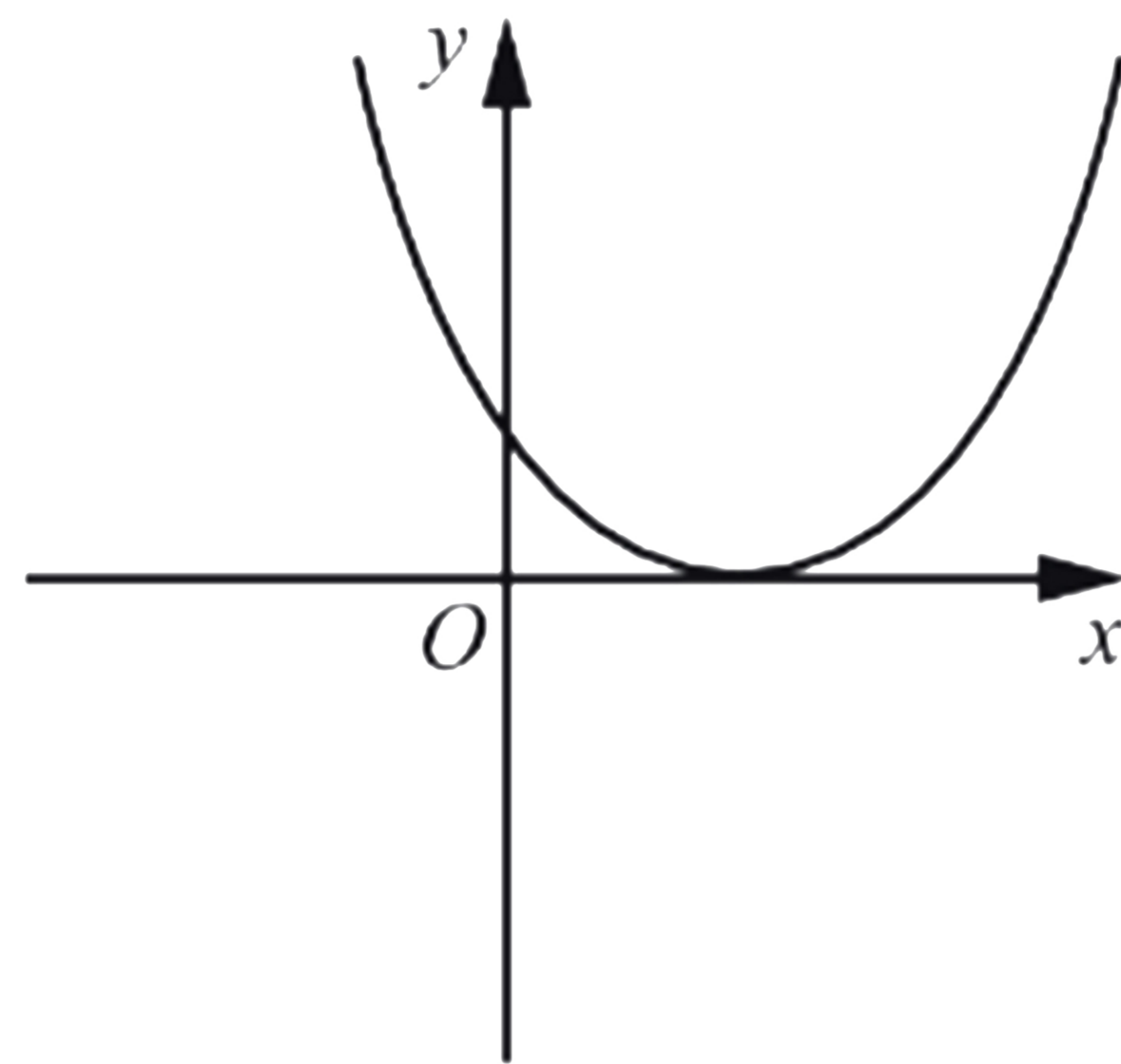


Figure B

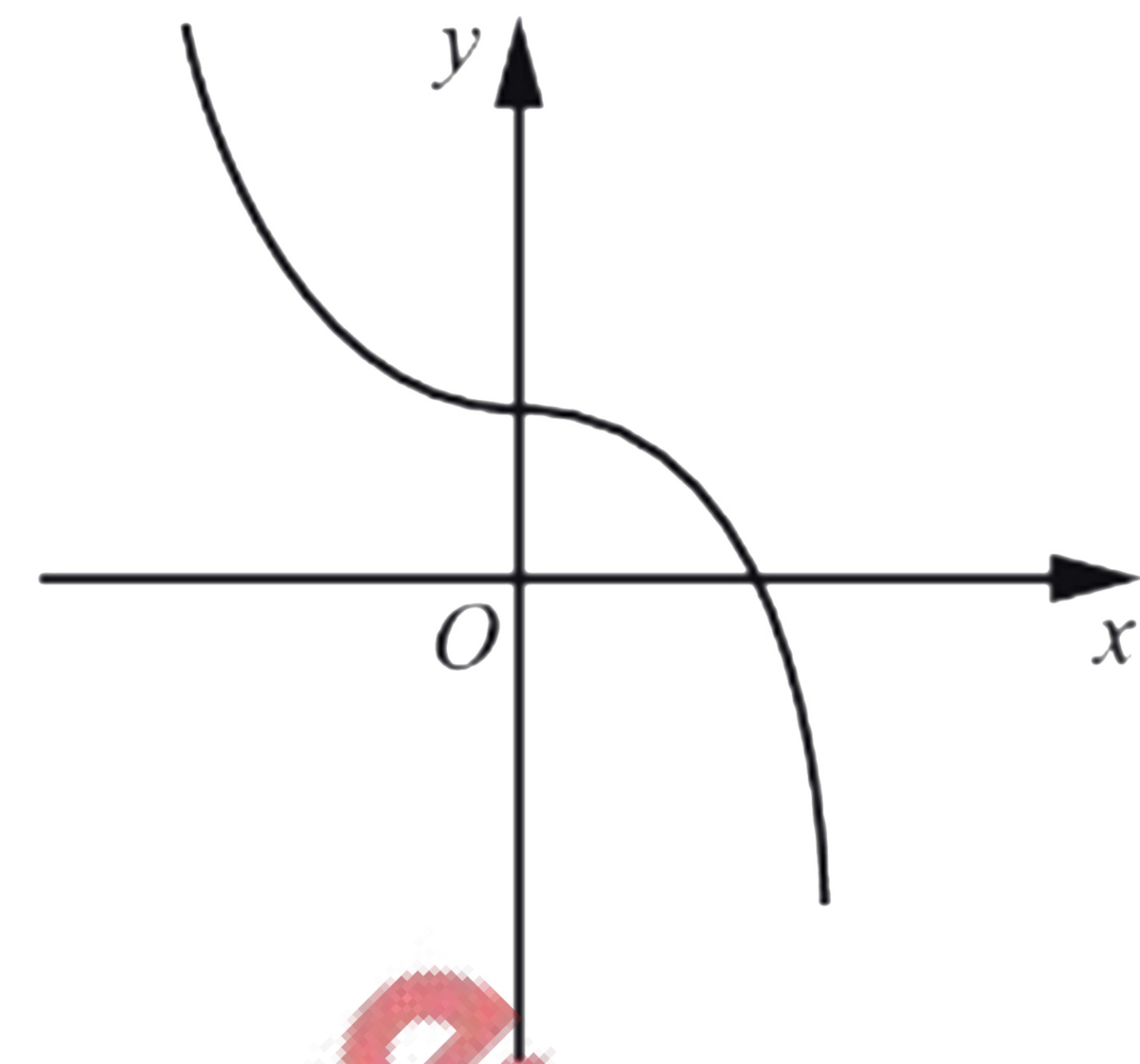


Figure C

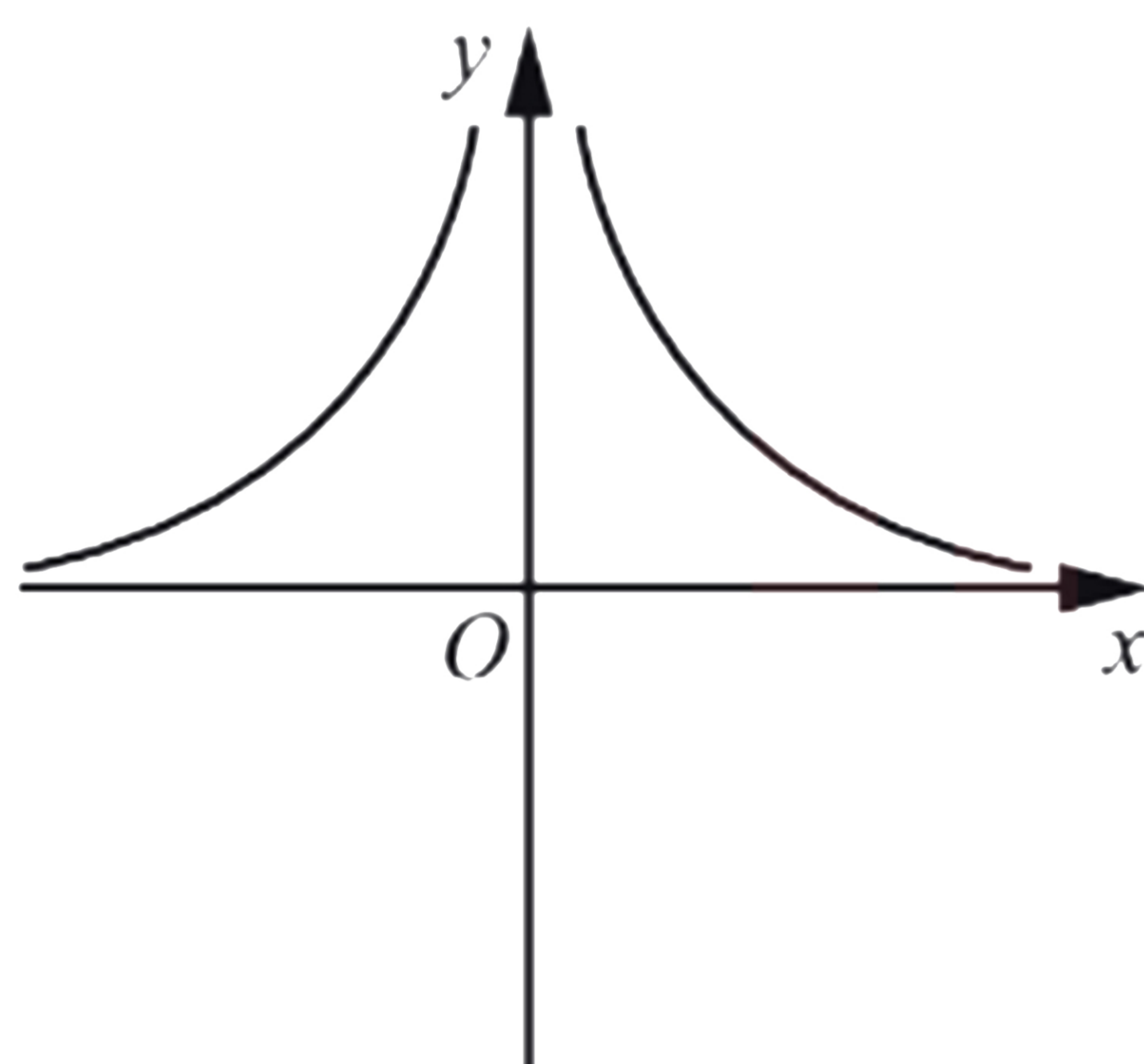


Figure D

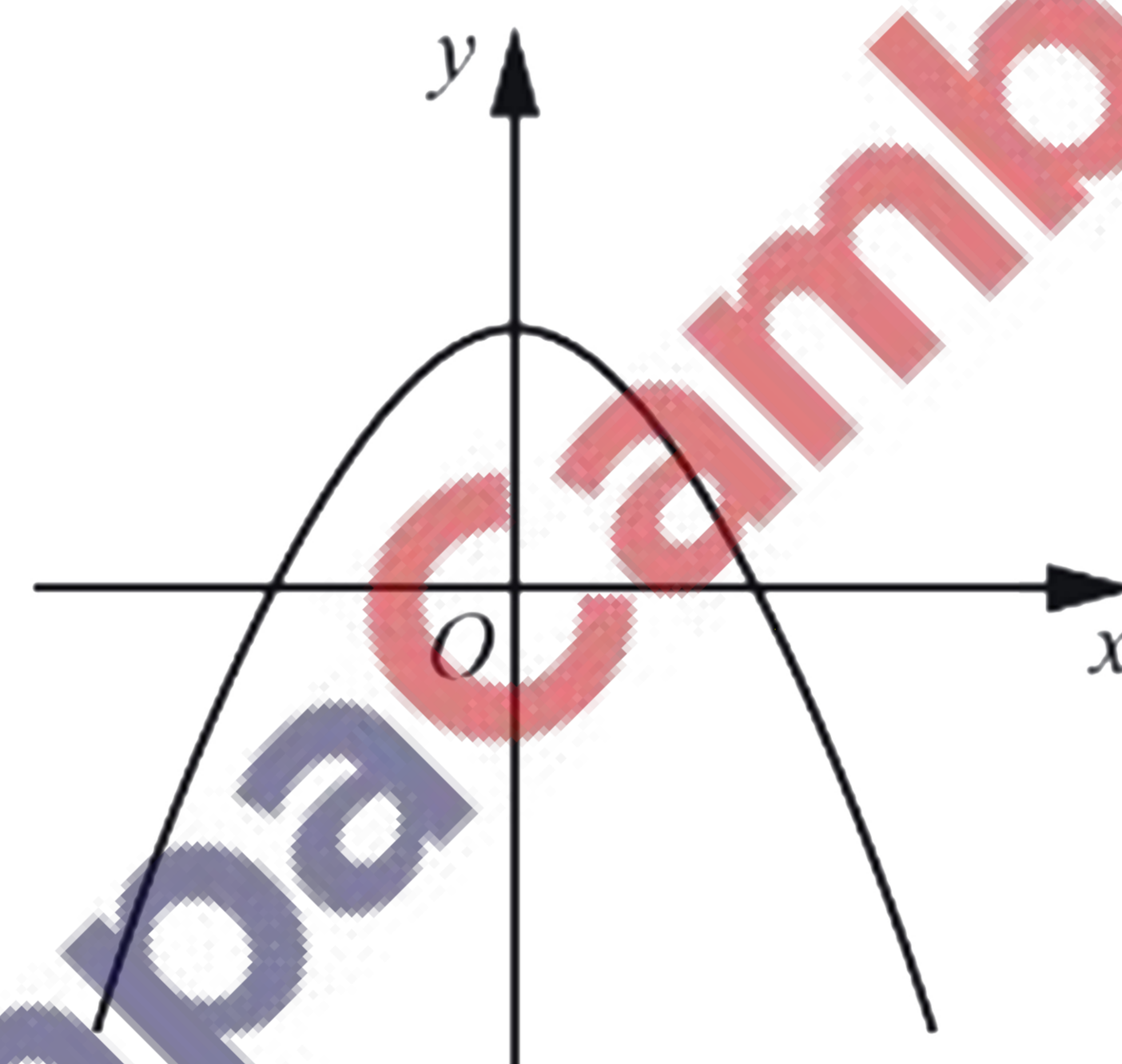


Figure E

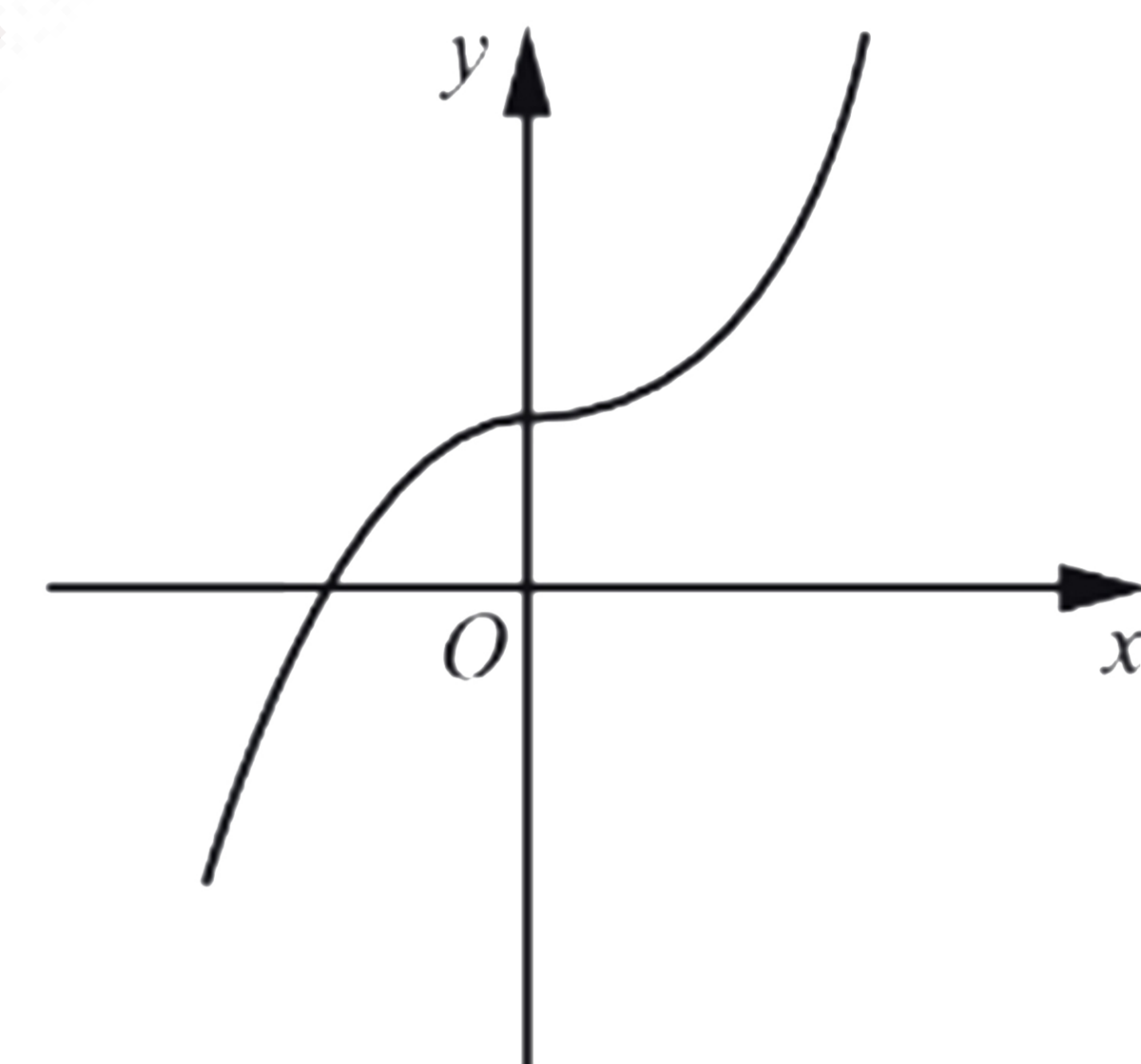


Figure F

State which of the figures above could be the graph of

(a) $y = x^3 + 2,$

[1]

(b) $y = \frac{2}{x},$

[1]

(c) $y = 2 - x^2.$

[1]

2. O/N 14/P11/Q20

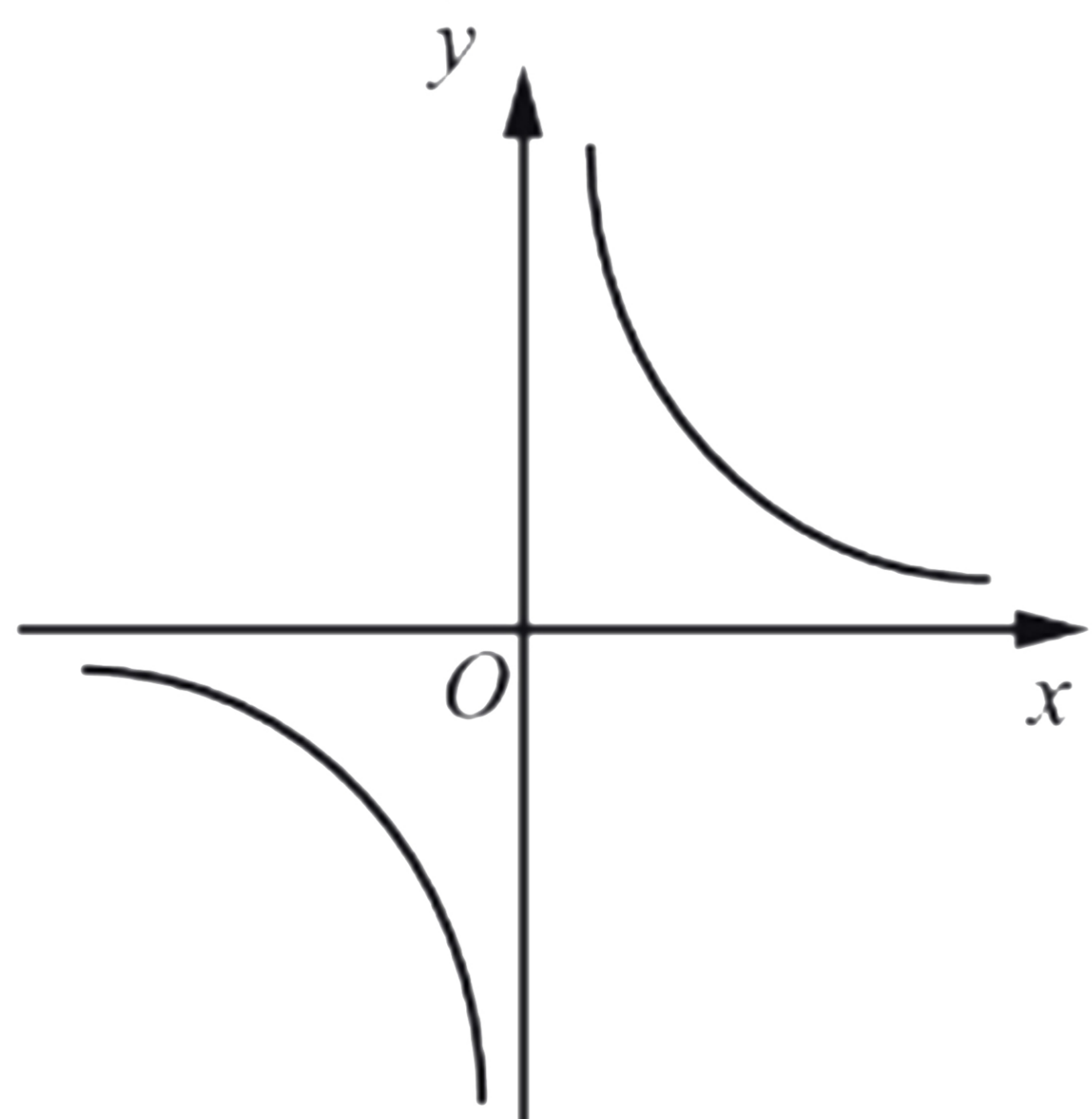


Figure A

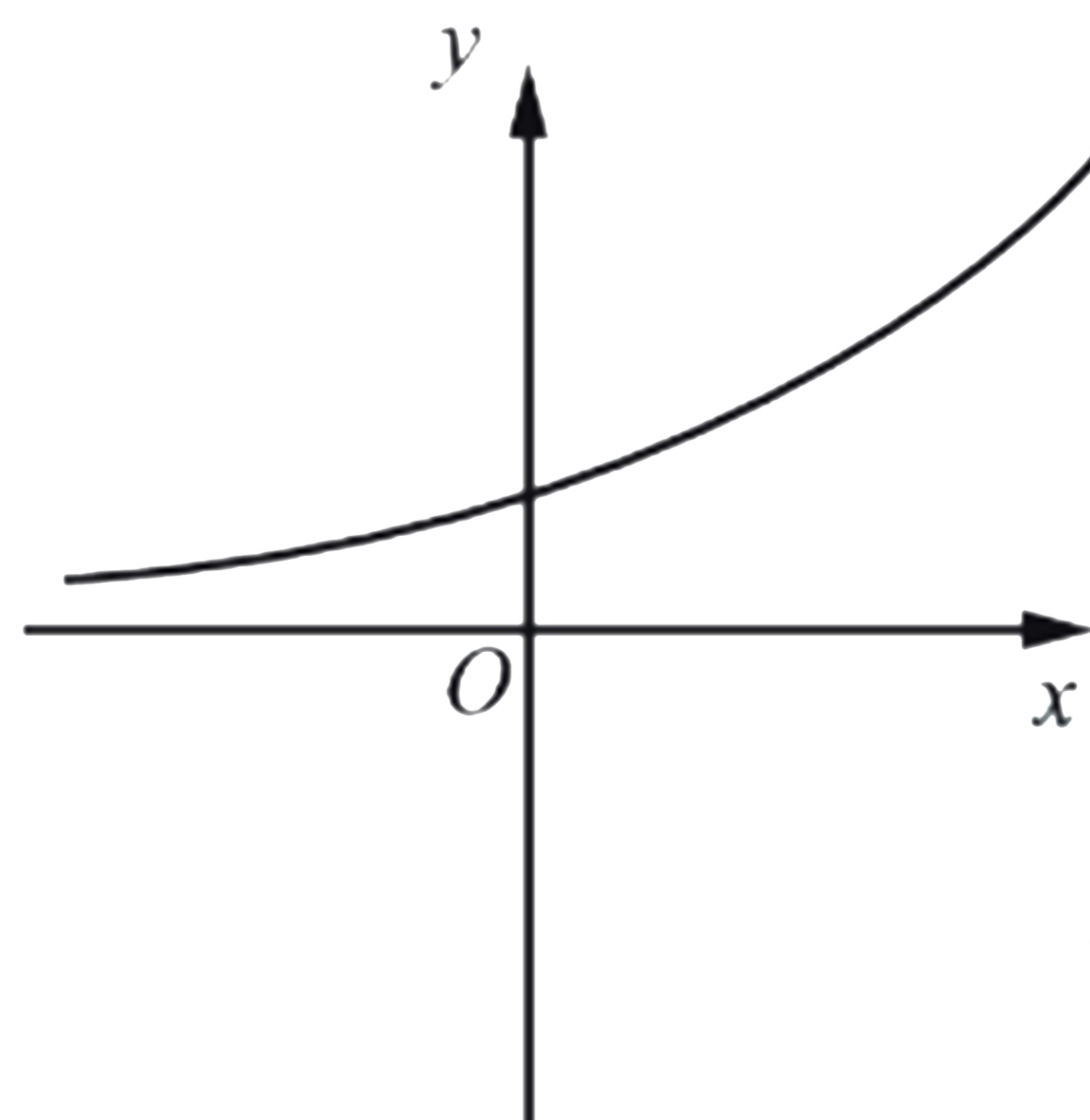


Figure B

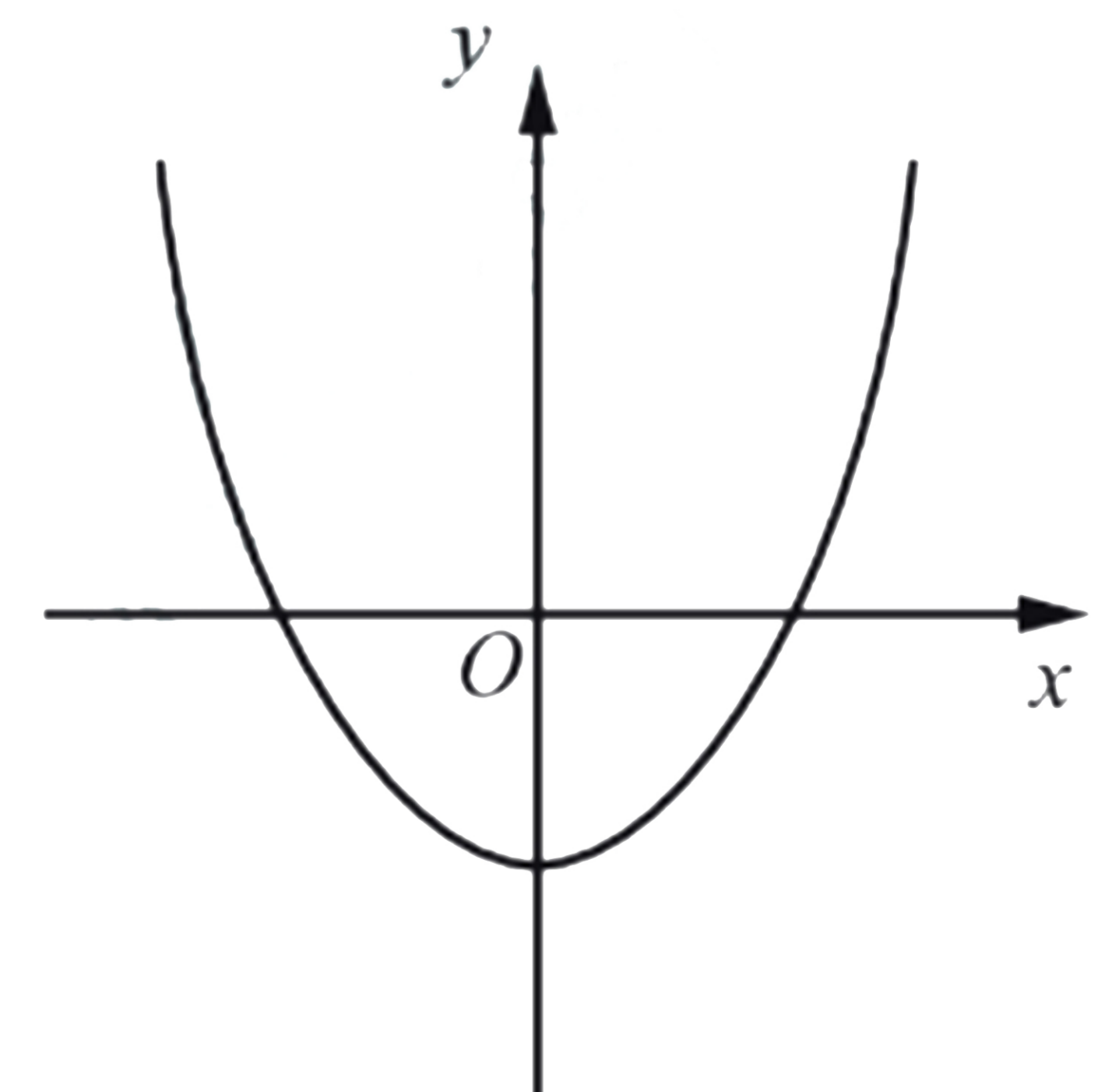


Figure C

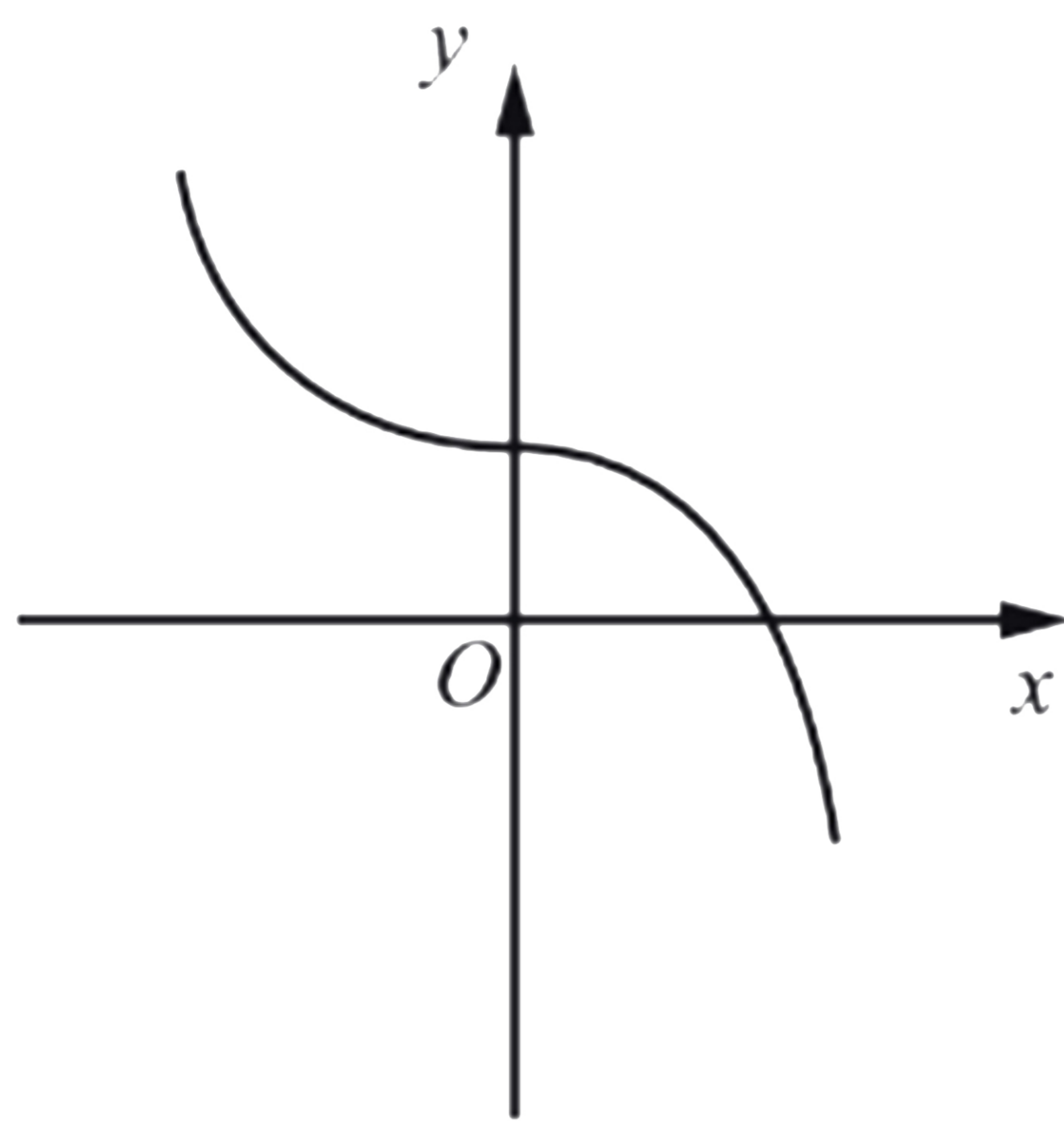


Figure D

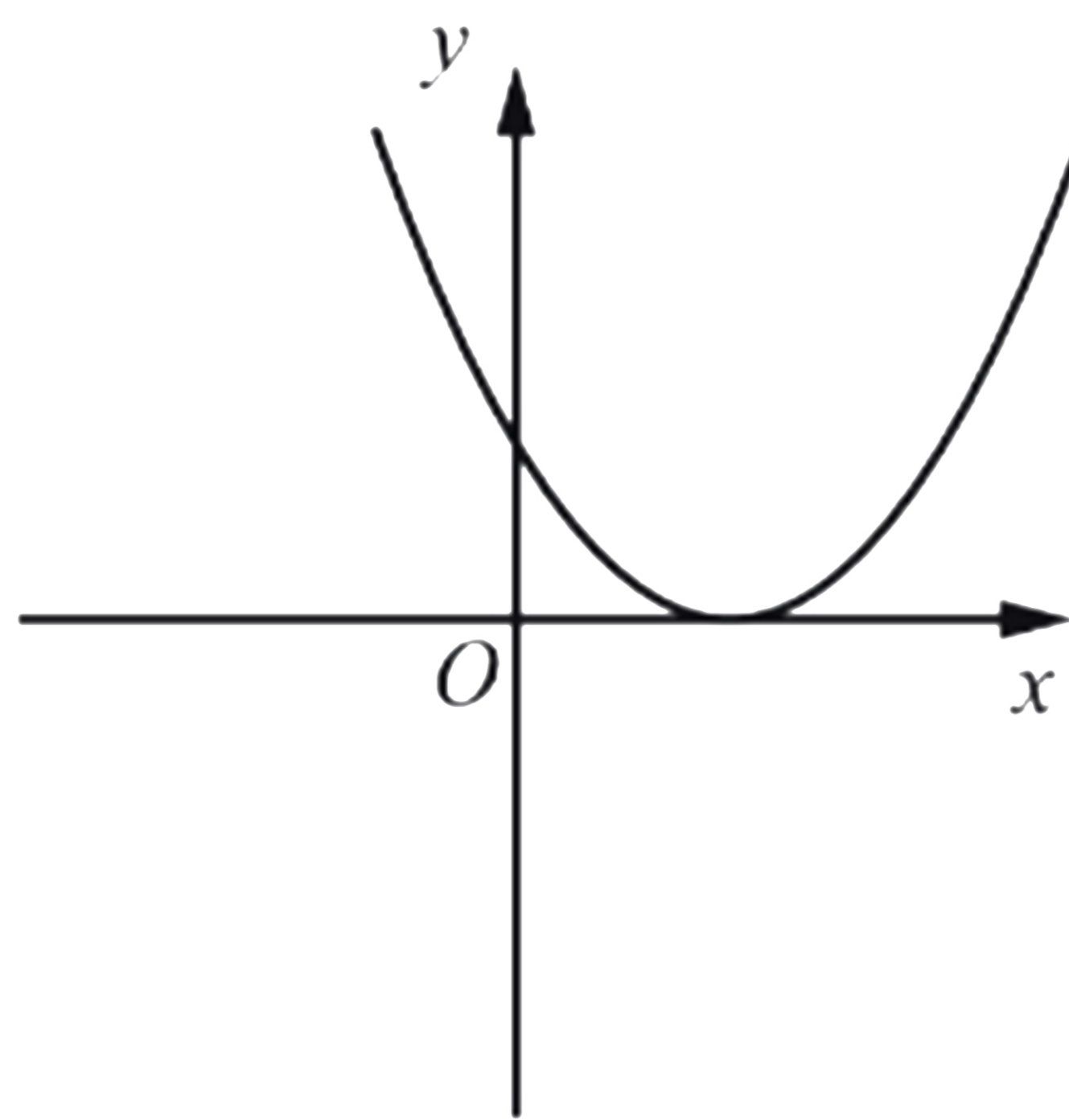


Figure E

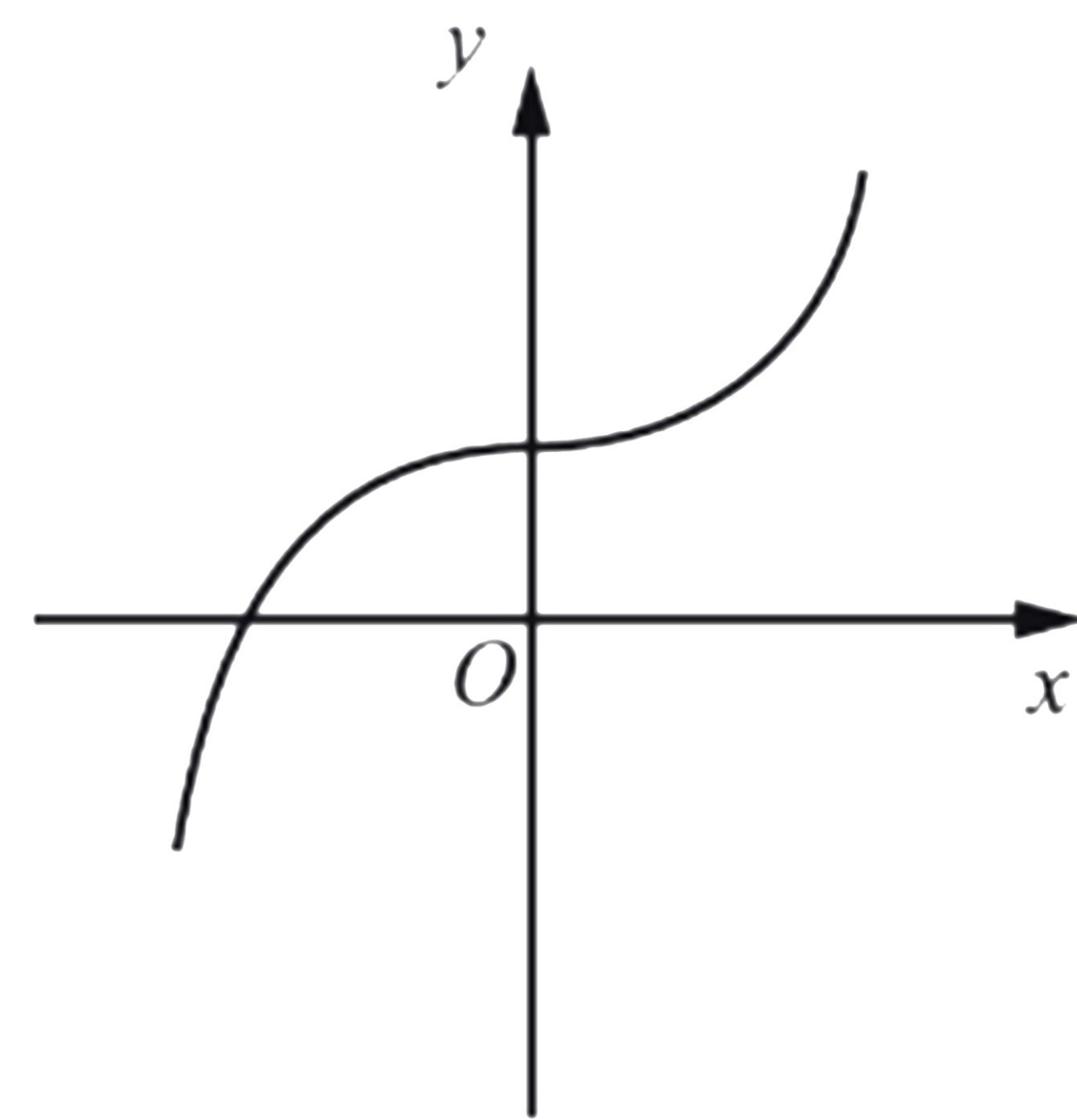


Figure F

State which figure could be the graph of

- (a) $y = x^3 + 1$, [1]
- (b) $y = x^2 - 3$, [1]
- (c) $y = 3^x$, [1]
- (d) $y = (x - 3)^2$. [1]

3. M/J 11/P11/Q24

The variables x and y are connected by the equation $y = x^3 - 6x$.

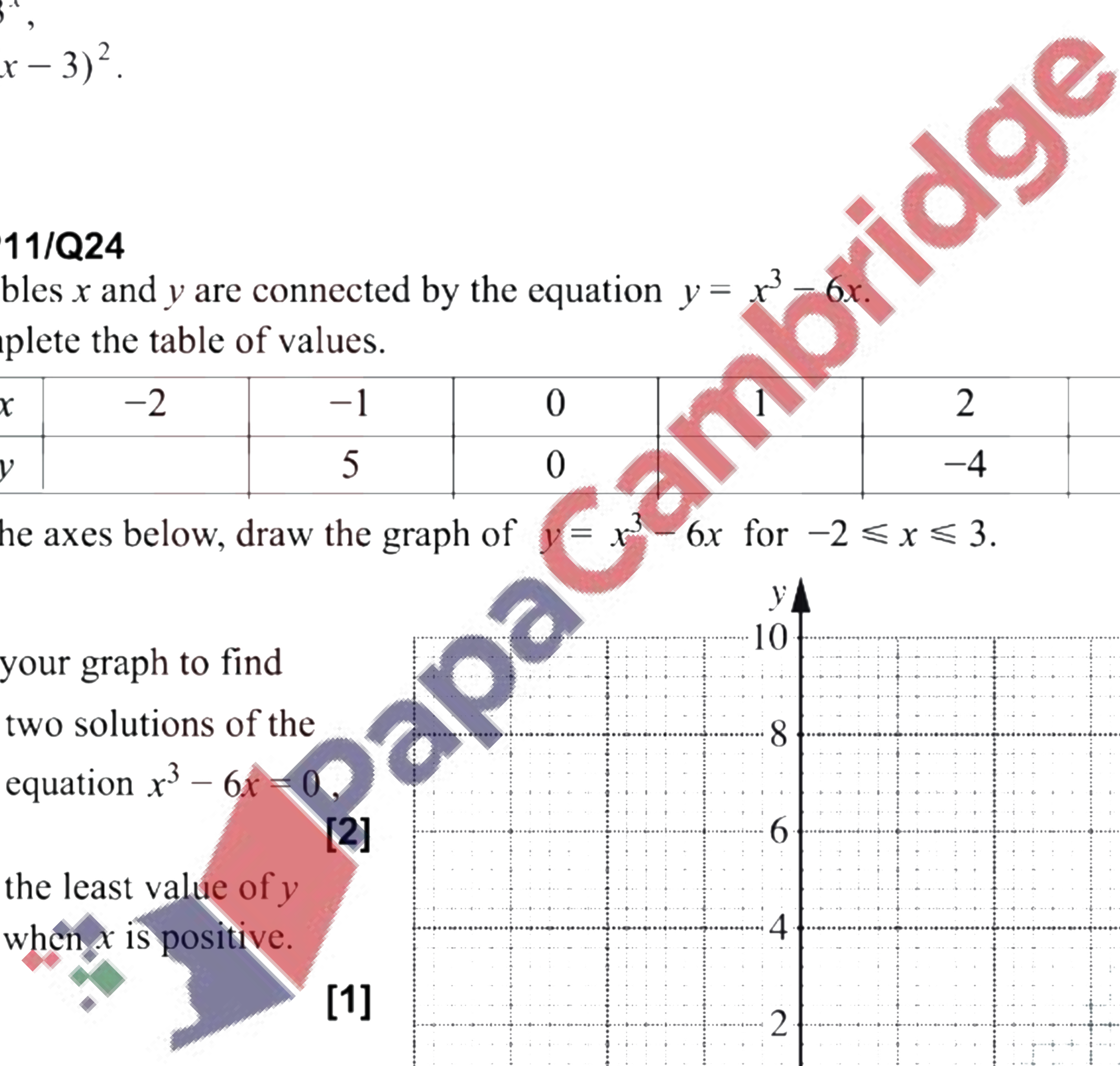
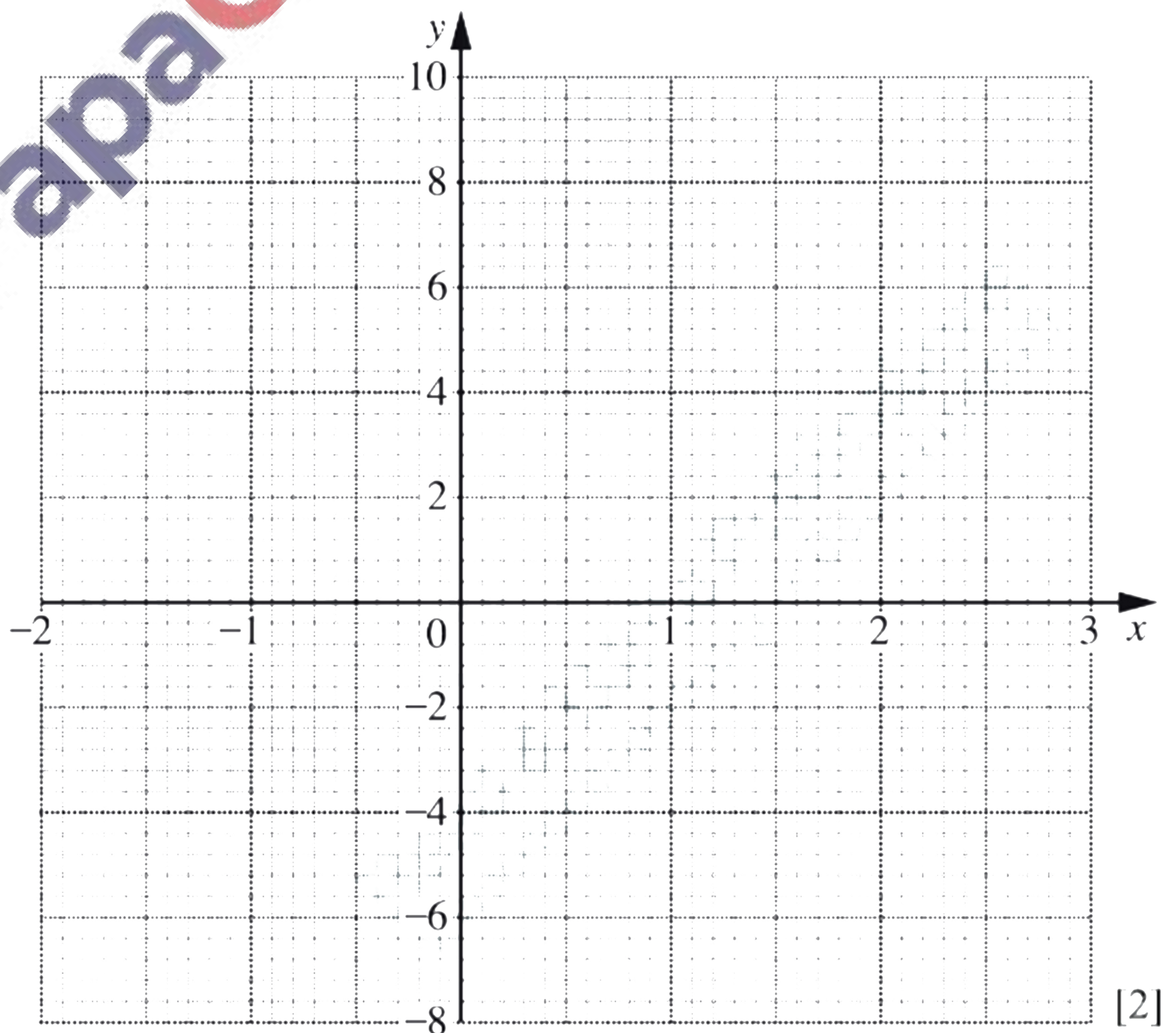
(a) Complete the table of values.

x	-2	-1	0	1	2	3
y		5	0		-4	9

(b) On the axes below, draw the graph of $y = x^3 - 6x$ for $-2 \leq x \leq 3$.

(c) Use your graph to find

- (i) two solutions of the equation $x^3 - 6x = 0$, [2]
- (ii) the least value of y when x is positive. [1]



4. M/J 09/P01/Q13

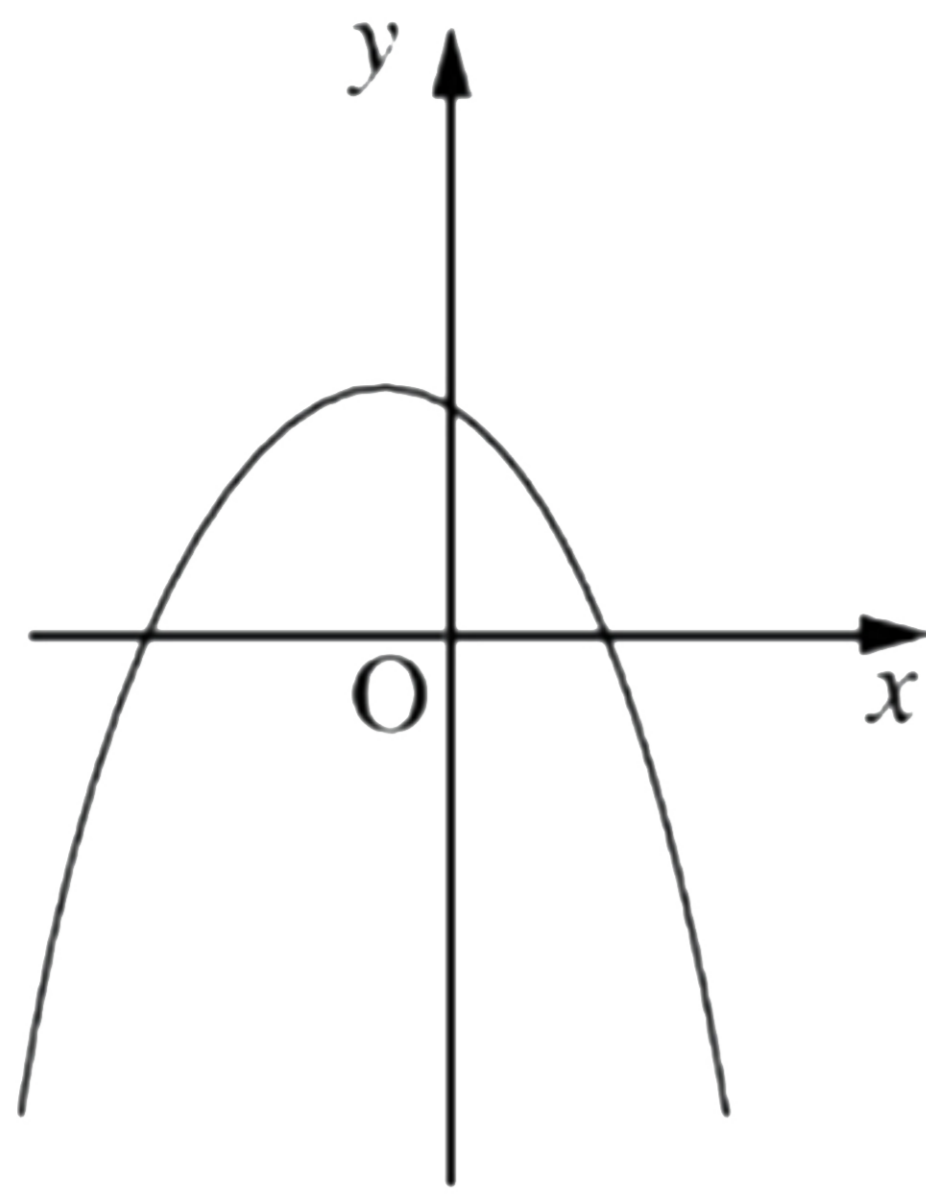


Figure 1

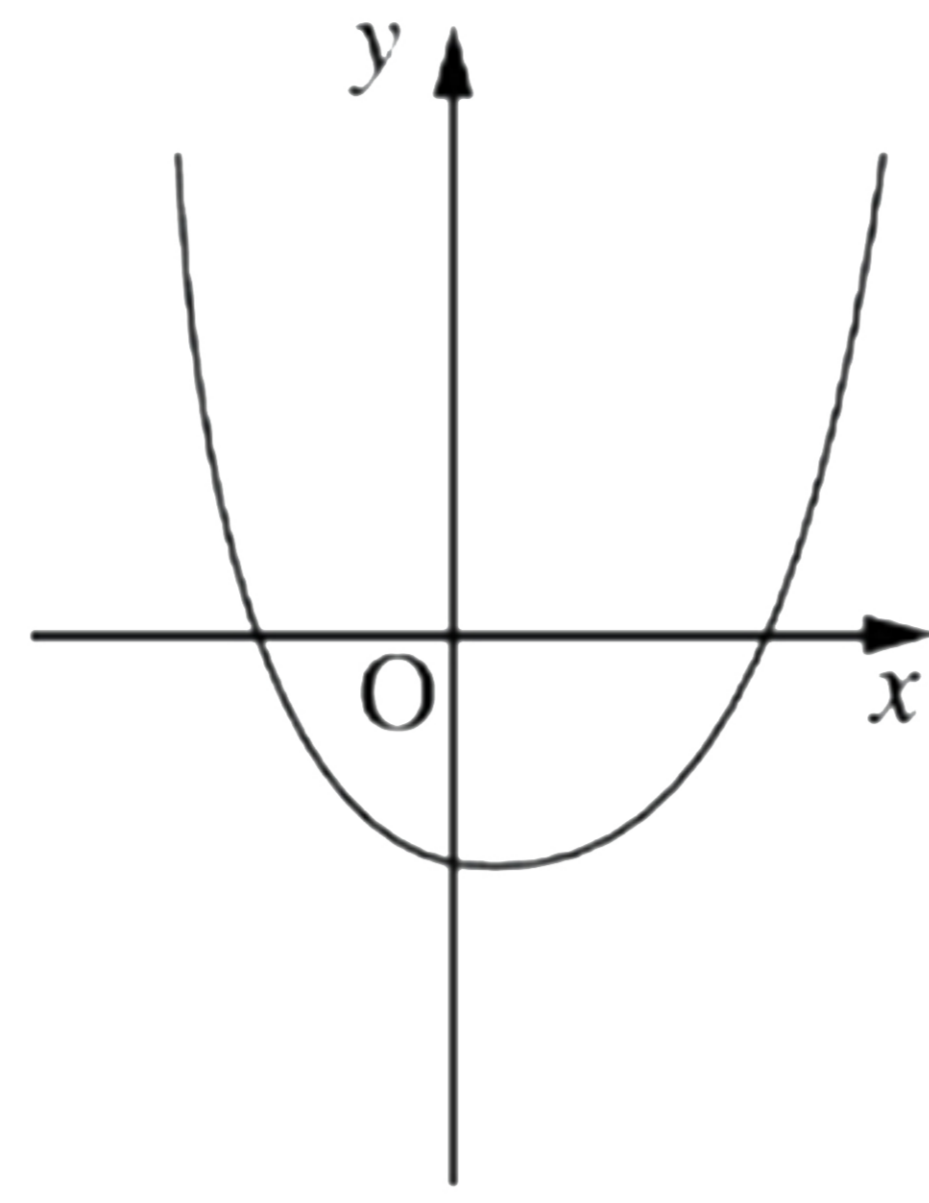


Figure 2

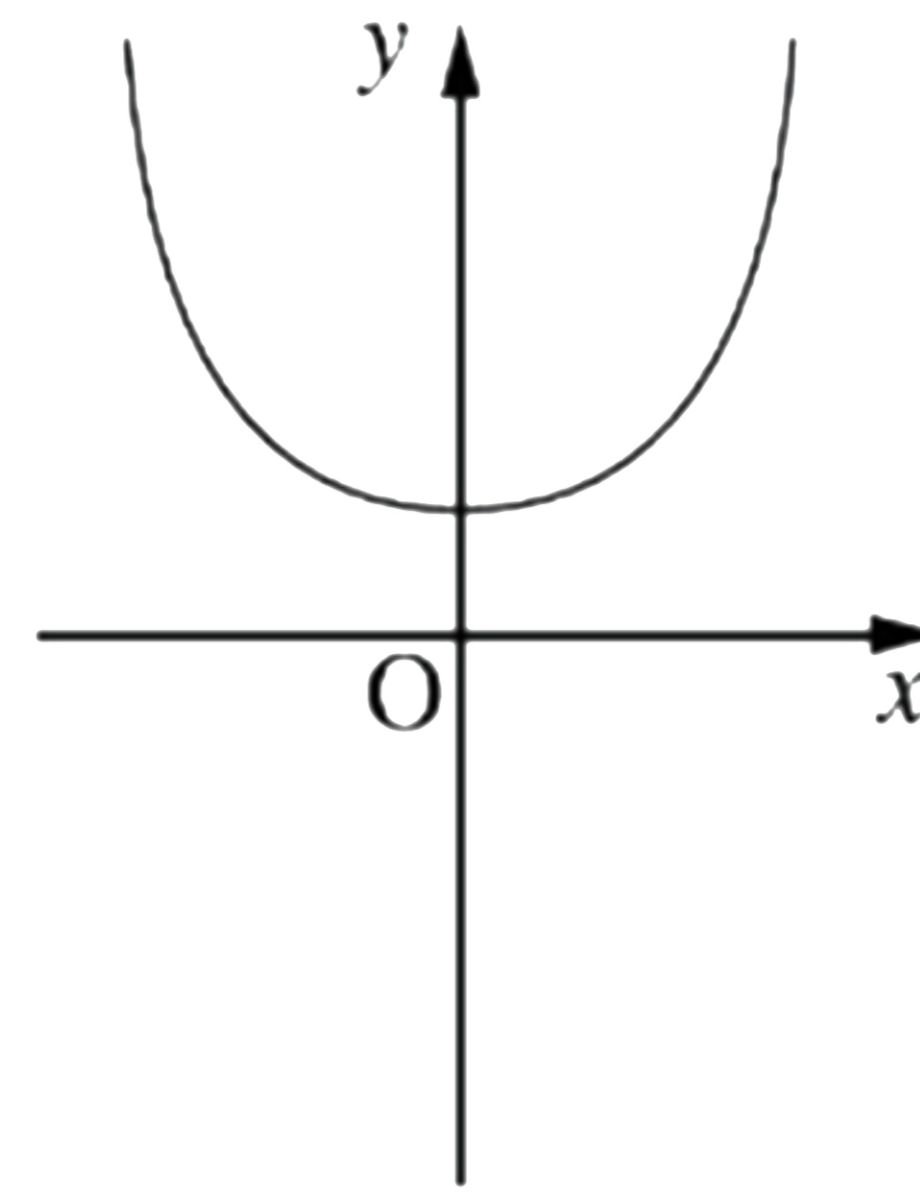


Figure 3

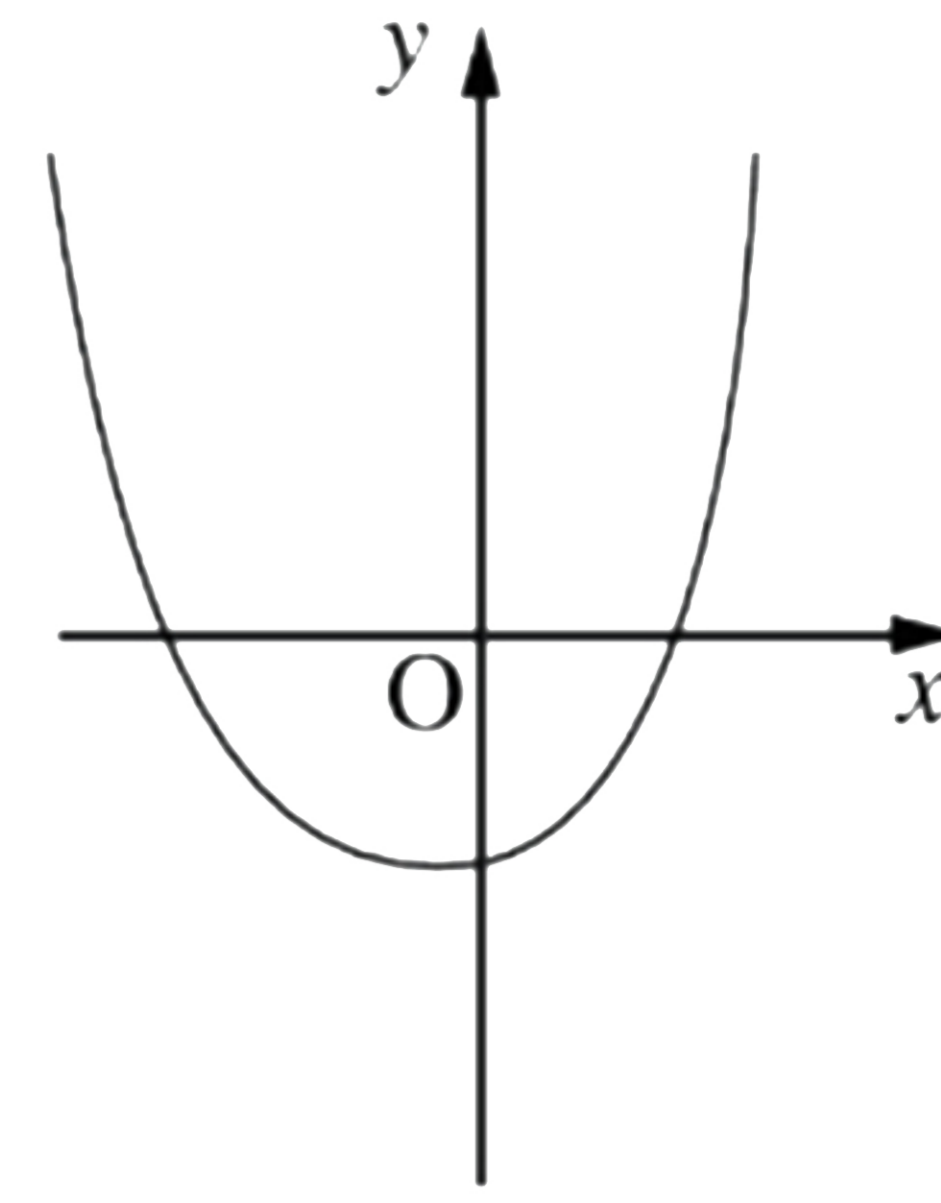


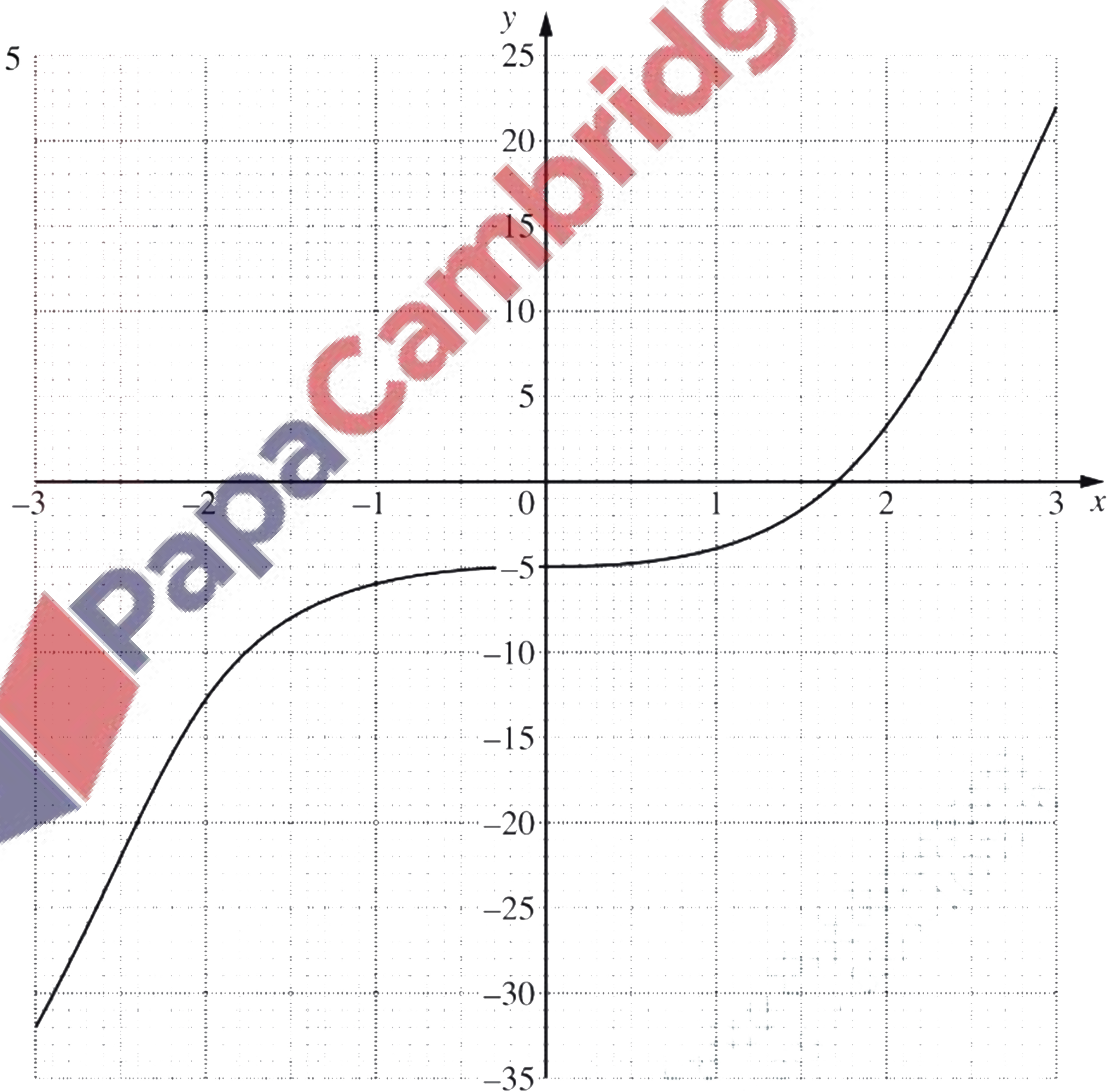
Figure 4

Which of the figures shown above could be the graph of

- (a) $y = x^2 + 2$, [1]
- (b) $y = (x - 2)(x + 1)$, [1]
- (c) $y = 2 - x - x^2$? [1]

5. O/N 08/P01/Q17

The curve $y = x^3 - 5$ is shown on the axes below.



- (a) Use the graph to find an approximate value of $\sqrt[3]{5}$. [1]
- (b) (i) On the axes above, draw the graph of $y = 15 - 5x$. [1]
- (ii) Write down the coordinates of the point where the graphs cross. [1]
- (iii) The x coordinate of the point where the graphs cross is a solution of the equation $x^3 = a + bx$. [1]
 Find the value of a and the value of b .

Answers Section

1. M/J 18/P11/Q23

- (a) F 1
- (b) A 1
- (c) E 1

2. O/N 14/P11/Q20

- (a) F 1
- (b) C 1
- (c) B 1
- (d) E 1

3. M/J 11/P11/Q24

- (a) 4 -5 2
- (b) 6 correct plots ft and curve 2ft
- (c) (i) 0 cao 2
 2.4 to 2.5 ft
- (ii) ft from graph 1ft

4. M/J 09/P01/Q13

- (a) 3 1
- (b) 2 1
- (c) 1 1

5. O/N 08/P01/Q17

- (a) 1.7 to 1.71 1
- (b) (i) Straight line passing through (0, 15) and (3, 0) 1
- (ii) (2.1, 4.5) f.t. from their intersection to within 1 mm on each axis 1√
- (iii) $a = 20$ and $b = -5$ 1

