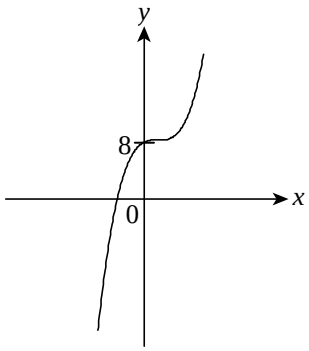
CHAPTER 13: GRAPHS OF FUNCTIONS II

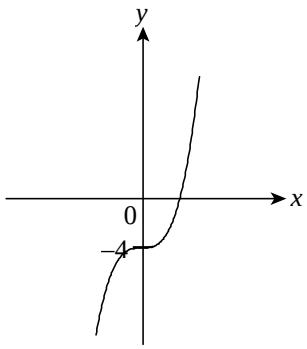
Cloned SPM Question (2006, Paper 1)

Which of the following graphs represents $y = 8 - 4x^3$?

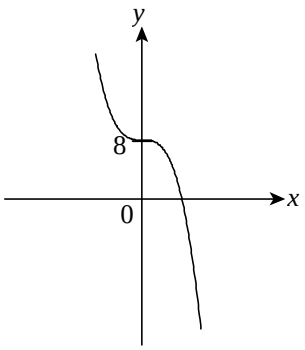
A



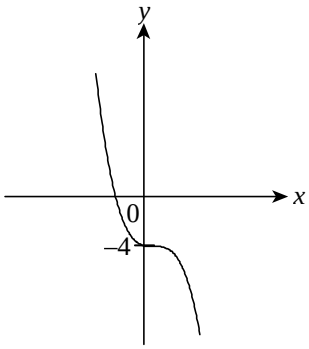
C



B



D



Solution

$y = 8 - 4x^3$

When $x = 0$, $y = 8 - 0 = 8$
Therefore, y-intercept = 8

Coefficient of $x^3 = -4$, that is negative.

Thus, **B** is the answer.

Answer: **B**

Pointers

- From the y-intercept, the answer is either **A** or **B**.
- Since the coefficient of x^3 is negative, the shape of the graph is ⌇.

Cloned SPM Question (2006, Paper 2)

(a) Complete the following table for the equation $y = \frac{18}{x}$.

x	–4	–3	–2	–1	–0.5	1	1.5	2	3	4
y	–4.5	–6	–9	–18		18	12	9		4.5

(b) *For this part of the question, use graph paper. You may use a flexible curve rule.*
By using a scale of 2 cm to 1 unit on the x-axis and 2 cm to 5 units on the y-axis, draw the graph of $y = \frac{18}{x}$ for $-4 \le x \le 4$.

(c) From your graph, find
(i) the value of y when $x = 3.4$,
(ii) the value of x when $y = -25$.

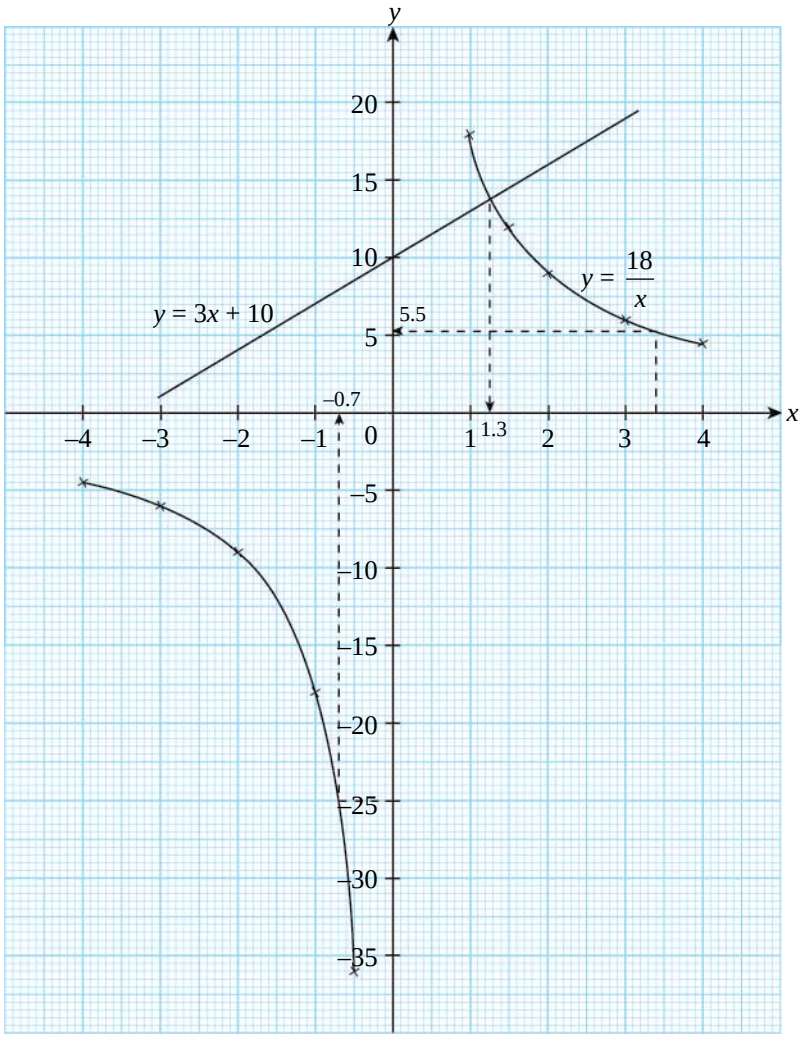
(d) Draw a suitable straight line on your graph to find a value of x which satisfies the equation $3x^2 + 10x = 18$ for $-4 \le x \le 4$. State this value of x.

Solution

(a)

x	–0.5	3
y	–36	6

(b)



(c) (i) $y = 5.5$

(ii) $x = -0.7$

(d) Equation to be solved: $3x^2 + 10x = 18$

$\div x$: $3x + 10 = \frac{18}{x}$

Thus, the straight line to be drawn is $y = 3x + 10$.

Based on the graph, $x = 1.3$

Pointers

- (a) Substitute the value of x into $y = \frac{18}{x}$ to find the value of y.
- (b) Use the scale given to earn full marks.
- (c) No calculation is allowed. Answer must be read from the graph.
- (d) Read the x-coordinate of the point of intersection of the graphs $y = \frac{18}{x}$ and $y = 3x + 10$ to get the answer.