

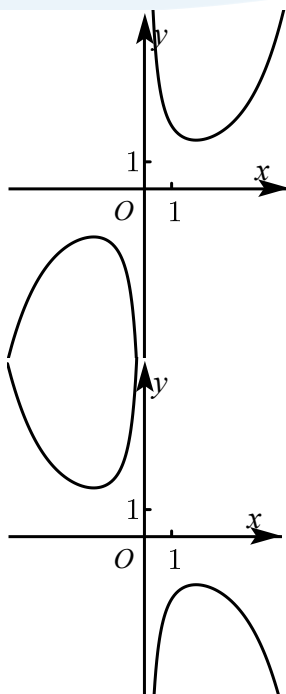
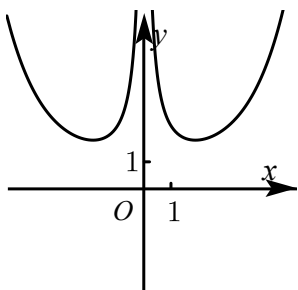
第二讲-指数对数比大小练习题

一、指数对数比大小

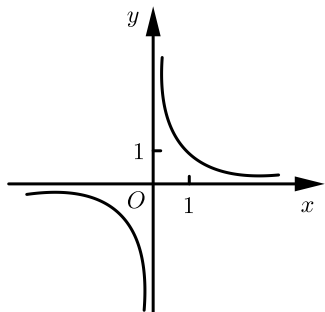
1. 已知 $a = 2^{-\frac{1}{3}}$, $b = \log_2 \frac{1}{3}$, $c = \log_{\frac{1}{2}} \frac{1}{3}$, 则 ().
A. $a > b > c$ B. $a > c > b$ C. $c > a > b$ D. $c > b > a$
2. 已知 $a = \log_3 \frac{7}{2}$, $b = \left(\frac{1}{4}\right)^{\frac{1}{3}}$, $c = \log_{\frac{1}{3}} \frac{1}{5}$, 则 a, b, c 的大小关系为 ().
A. $a > b > c$ B. $b > a > c$ C. $c > b > a$ D. $c > a > b$
3. 设 $a = \log_2 \pi$, $b = \log_{\frac{1}{2}} \pi$, $c = \pi^{-2}$, 则 ().
A. $a > b > c$ B. $b > a > c$ C. $a > c > b$ D. $c > b > a$
4. 已知 $a = 2^{-\frac{1}{3}}$, $b = \log_2 \frac{1}{3}$, $c = \log_{\frac{1}{2}} \frac{1}{3}$, 则 ().
A. $a > b > c$ B. $a > c > b$ C. $c > a > b$ D. $c > b > a$
5. 设 $a = \left(\frac{1}{2}\right)^{0.2}$, $b = \log_2 3$, $c = 2^{-0.3}$, 则 ().
A. $b > c > a$ B. $a > b > c$ C. $b > a > c$ D. $a > c > b$
6. 已知 $a = \log_{\frac{1}{3}} 2$, $b = \left(\frac{1}{3}\right)^2$, $c = 2^{\frac{1}{3}}$, 那么 a, b, c 之间的大小关系为 ().
A. $b < c < a$ B. $b < a < c$ C. $c < a < b$ D. $a < b < c$
7. 设 $a = 1 - 2^{0.2}$, $b = \log_3 \frac{10}{3}$, $c = \lg 4$, 则 a, b, c 的大小关系是 ().
A. $a < c < b$ B. $b < c < a$ C. $c < a < b$ D. $c < b < a$
8. 已知 $a = 2^{-\frac{1}{5}}$, $b = \log_2 \frac{1}{5}$, $c = \log_{\frac{1}{2}} \frac{1}{5}$, 则 a, b, c 的大小关系为 ().
A. $a > b > c$ B. $a > c > b$ C. $c > a > b$ D. $c > b > a$

二、函数图像

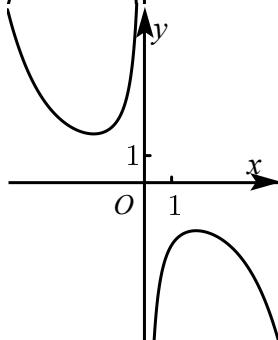
9. 函数 $f(x) = \frac{e^x - e^{-x}}{x^2}$ 的图象大致为 ().
A. B.



C.

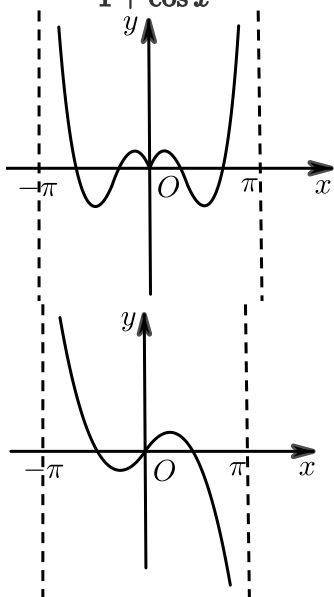


D.

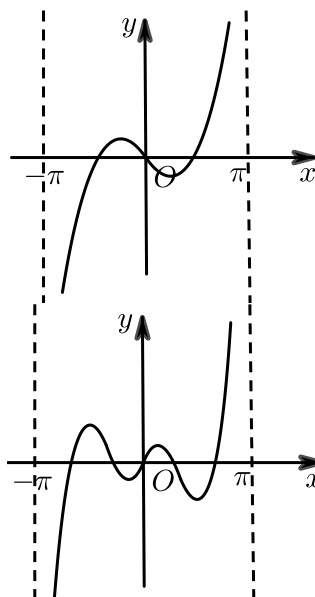


10. 函数 $y = \frac{\sin 3x}{1 + \cos x}$, $x \in (-\pi, \pi)$ 的图象大致为 ().

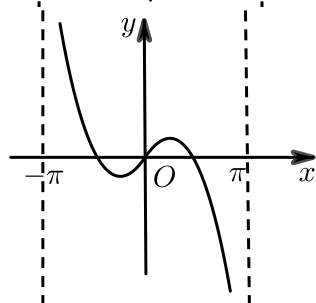
A.



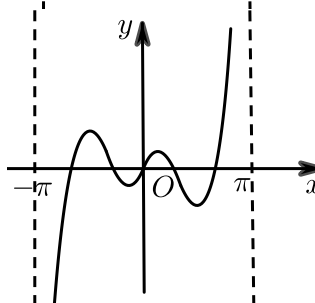
B.



C.

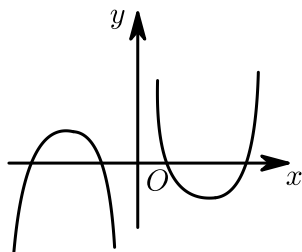


D.

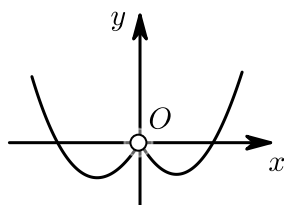


11. 函数 $y = x \cdot \ln|x|$ 的大致图象是 ().

A.

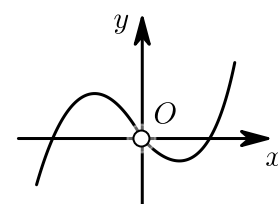


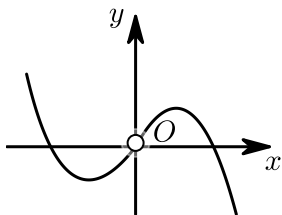
B.



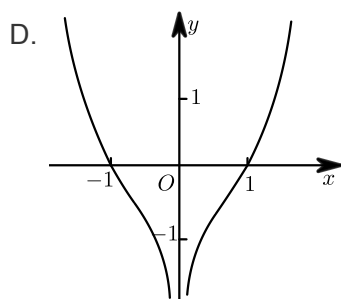
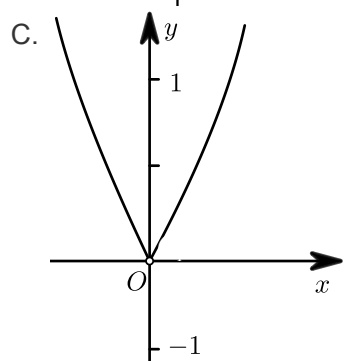
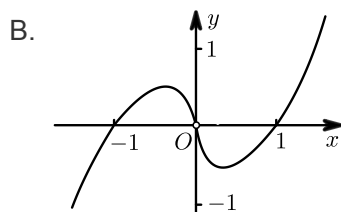
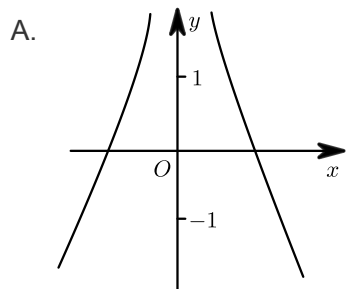
C.

D.

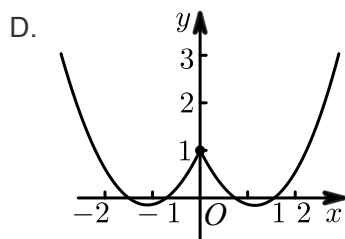
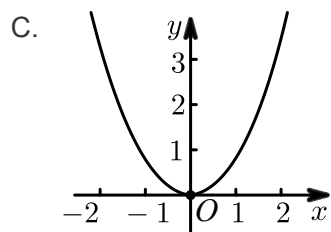
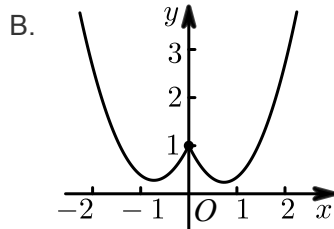
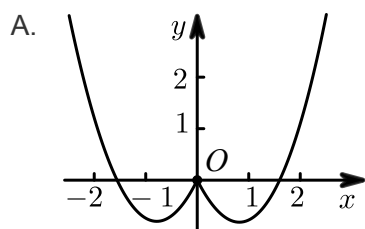




12. 已知函数 $f(x) = (2^x + 2^{-x}) \ln |x|$ 的图象大致为 () .



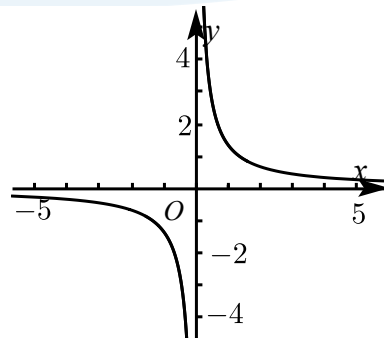
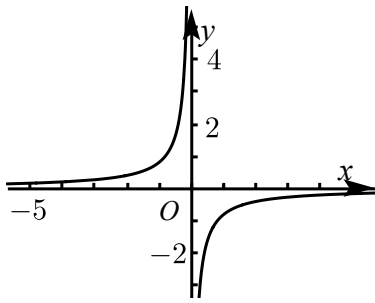
13. 函数 $f(x) = \frac{\sin x}{x} + x^2 - 2|x|$ 的大致图象为 () .



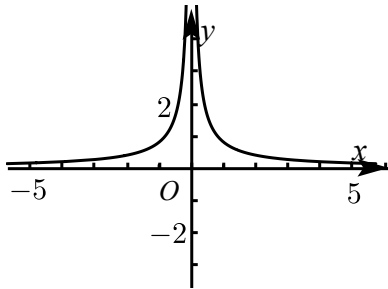
14. 函数 $f(x) = \frac{\ln(\sqrt{x^2+1} - x)}{x^2}$ 的图象大致为 () .

A.

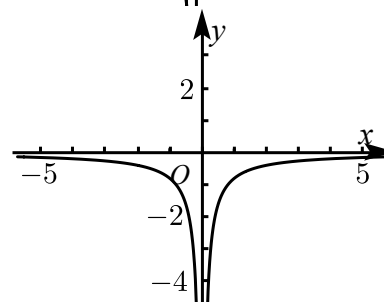
B.



C.

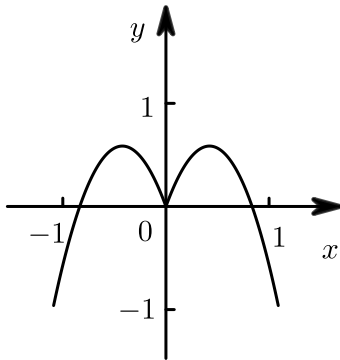


D.

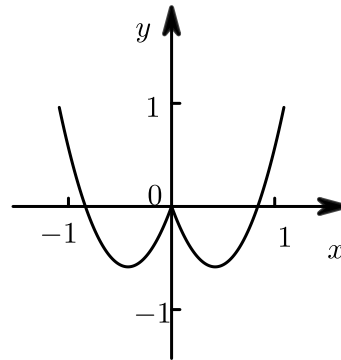


15. 函数 $y = x^3 + \ln(\sqrt{x^2 + 1} - x)$ 的图象大致为 () .

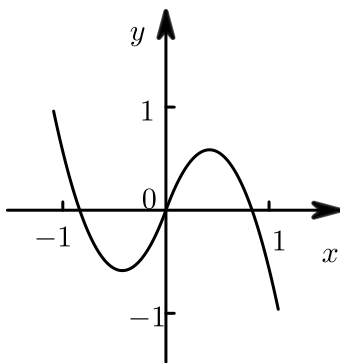
A.



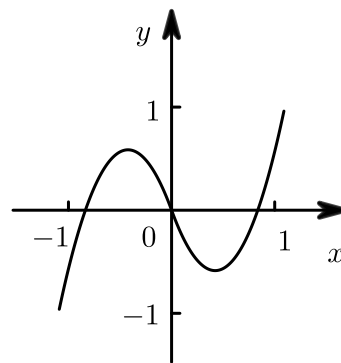
B.



C.



D.



三、函数零点

16. 设函数 $f(x) = \begin{cases} 4x - 4, & x \leq 1 \\ x^2 - 4x + 3, & x > 1 \end{cases}$, 则函数 $g(x) = f(x) - \log_2 x$ 的零点个数为 () .

A. 1个

B. 2个

C. 3个

D. 4个

17. 函数 $f(x) = x - 4 - (x + 2) \cdot \left(\frac{2}{3}\right)^x$ 的零点个数为 () .

A. 0

B. 1

C. 2

D. 3

18. 已知函数 $f(x) = \begin{cases} |\log_2(1-x)|, & x < 1 \\ -x^2 + 4x - 2, & x \geq 1 \end{cases}$ 则方程 $f\left(x + \frac{1}{x} - 2\right) = 1$ 的实根个数为 () .

A. 8

B. 7

C. 6

D. 5

19. 已知函数 $f(x) = \begin{cases} 2x + 1, & x \leq 0 \\ |\ln x|, & x > 0 \end{cases}$, 方程 $f[f(x)] = 3$ 的实数根的个数是 () .

A. 6

B. 3

C. 4

D. 5

20. 函数 $f(x) = \begin{cases} x + 1, & (x \leq 0) \\ |\log_2 x|, & (x > 0) \end{cases}$, 则函数 $y = f[f(x)] - 1$ 的零点个数是 _____ .