If $f(x) = |x^2 - 16|$, then the critical number(s) of f is (are)

(A) $x = 4$

(B) $x = 0$

(C) $x = -4, 4$

(D) $x = -4, 0, 4$

(E) No critical numbers.

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(A

(B

(C

(D

(E

Question 13

Not yet answered

Marked out of 1

Flag question

The function $f(x) = 2 + 2x^2 - x^4$ is increasing on

A) $(-\infty, 1)$

B) $(-1,0)$ and $(1, \infty)$

C) $(-1,0)$ only

D) $(-\infty, -1)$ and $(0,1)$

E) $(1, \infty)$

Select one

A)

B)

C)

D)

If $f(x) = x^2 + \frac{8b}{x}$ has a point of inflection at $x = -2$, then $b =$

Answer

If $F(x) = c_1 x \sin x + c_2 \cos x$ is an antiderivative of $f(x) = x \cos x$.
Then $3c_1 + 5c_2 =$

Answer

The function $f(x) = \frac{x^2}{x+4}$ has a local maximum at the point(s) $x =$

A) -6 only

B) -8 only

C) -4 only

D) 0 and -8 only

E) $0, -4, -8$

Select one:

- A)
- B) (selected)
- C)
- D)

The absolute maximum of $f(x) = 4\sinh x$ on the interval $[\ln 3, \ln 4]$ is

A) 2

B) 3

C) 8

D) $\frac{16}{3}$

E) $\frac{15}{2}$

Select one:

- A)
- B)
- C)
- D)
- E)

If the polynomial $g(x) = ax^3 + 24x^2 + ax + a$ is concave up in the interval $(-1, \infty)$, then $a =$

Answer:

Let $f(x) = x - 2\sin x, 0 \leq x \leq 2\pi,$ then f

A) is decreasing on $(0, \frac{\pi}{3}) \cup (\frac{\pi}{3}, 2\pi)$.

B) is increasing on $(0, \frac{\pi}{3})$.

C) is increasing on $(\frac{5\pi}{3}, 2\pi)$.

D) is increasing on $(\frac{\pi}{3}, \frac{5\pi}{3})$.

E) is increasing on $(0, \pi)$.

The absolute maximum of $f(x) = 4\sinh x$ on the interval $[\ln 3, \ln 4]$ is

A) 2

B) 3

C) 8

D) $\frac{16}{3}$

E) $\frac{15}{2}$

Select one:

- A)
- B)
- C)
- D)
- E)

Question 11

Not yet answered

Marked out of 1

Flag question

If $g(\theta) = \alpha \sin\theta - \cos(\alpha\theta), \theta \in [0, \frac{3\pi}{2}], \alpha = \frac{k}{8} \neq 0.$
If $g(\theta)$ has a critical number at $\theta = \frac{\pi}{3}$, then $k =$

Answer:

The absolute maximum of $f(x) = 4\sinh x$ on the interval $[\ln 3, \ln 4]$ is

A) 2

B) 3

C) 8

D) $\frac{16}{3}$

E) $\frac{15}{2}$

Select one:

- A)
- B)
- C)
- D)
- E)

If $f(x) = x^2 + \frac{8b}{x}$ has a point of inflection at $x = -2$, then $b =$

Answer:

The local maximum value to the function $f(x) = x^3 e^{-x}$ is

A) 0

B) $27e^3$

C) $3e^3$

D) $27e^{-3}$

E) $3e^{-3}$

The absolute maximum of $f(x) = 4\sinh x$ on the interval $[\ln 3, \ln 4]$ is

A) 2

B) 3

C) 8

D) $\frac{16}{3}$

E) $\frac{15}{2}$

Select one:

A)

B)

C)

D)

E)

The absolute maximum of $f(x) = 4\sinh x$ on the interval $[\ln 3, \ln 4]$ is

A) 2

B) 3

C) 8

D) $\frac{16}{3}$

E) $\frac{15}{2}$

elect one:

A)

B)

C)

D)

E)

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Question **11**

Not yet answered

Marked out of 1

Flag question

Let $f(x) = x - 2\sin x, 0 \le x \le 2\pi,$ then f

A) is decreasing on $(0, \frac{\pi}{3}) \cup (\frac{\pi}{3}, 2\pi)$.

B) is increasing on $(0, \frac{\pi}{3})$.

C) is increasing on $(\frac{5\pi}{3}, 2\pi)$.

D) is increasing on $(\frac{\pi}{3}, \frac{5\pi}{3})$.

E) is increasing on $(0, \pi)$.

If $f(x) = \log_3(4 + 2x - x^2)$, then the value(s) of c that satisfies the conclusion of Rolle's theorem on $[-1, 3]$ is(are)

A) 1.

B) 0.

C) 0, 1.

D) −1, 3.

E) 3.

Select one:

- ○ A)
- ○ B)
- ○ C)
- ◉ D)
- ○ E)

Clear my choice

If $f(x) = x^2 + \frac{8b}{x}$ has a point of inflection at $x = -2$, then $b =$

Answer: ______

The local maximum value to the function $f(x) = x^3 e^{-x}$ is

A) 0

B) $27e^3$

C) $3e^3$

D) $27e^{-3}$

E) $3e^{-3}$

The local maximum value to the function $f(x) = x^3 e^{-x}$ is

A) 0

B) $27e^3$

C) $3e^3$.

D) $27e^{-3}$

E) $3e^{-3}$

Select one:

- ○ A)
- ○ B)
- ○ C)
- ● D)
- ○ E)

Clear my choice

If $f(1) = -3$, $f'(1) = 0$, and $f''(1) = -2$, then the function f has

A) a local maximum at $x = 1$.

B) a local minimum at $x = 1$.

C) a horizontal tangent at $x = 1$.

D) (B) and (C).

E) (A) and (C).

If $f(x) = \log_3(4 + 2x - x^2)$, then the value(s) of c that satisfies the conclusion of Rolle's theorem on $[-1, 3]$ is(are)

A) 1.

B) 0.

C) 0, 1.

D) −1, 3.

E) 3.

Let $f(x) = x - 2\sin x, 0 \le x \le 2\pi,$ then f

A) is decreasing on $(0, \frac{\pi}{3}) \cup (\frac{\pi}{3}, 2\pi)$.

B) is increasing on $(0, \frac{\pi}{3})$.

C) is increasing on $(\frac{5\pi}{3}, 2\pi)$.

D) is increasing on $(\frac{\pi}{3}, \frac{5\pi}{3})$.

E) is increasing on $(0, \pi)$.

Select one:

A)

The absolute minimum of the function $f(x) = x^2e^{-x} + 4$ on the interval $[-1,3]$ is $f(x) =$

A) 2

B) -1

C) 4

D) 3

E) 1

If $f(x)$ is a function defined on the interval $[-2,5]$. If 1 is the only critical number of $f(x)$ in the interval $(-2,5)$. Using the following table:

x	-2	1	5
$f(x)$	-7	3	0

The absolute maximum value of $f(x)$ is:

A) 1
B) 3
C) 5
D) 7
E) $f(x)$ has no absolute maximum value