The Horizontal Asymptote(s) of $f(x) = \frac{2x^2 \tan^{-1} x}{x^2 + 1}$ is (are):

A)
$$y=2$$

B)
$$y = -\frac{\pi}{2}$$

C)
$$y=\pm\frac{\pi}{2}$$

D)
$$y = \frac{\pi}{2}$$

E)
$$y = \pm \pi$$

Street one

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3)

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The function $f(x) = (\sin x) e^{-\sqrt{3}x}$, $0 < x < 2\pi$, has a horizontal tangent line at x =

(A)
$$x = \frac{2\pi}{3}, \frac{5\pi}{3}$$

(B)
$$x = \frac{5\pi}{6}, \frac{7\pi}{6}$$

(C)
$$x = \frac{5\pi}{6}, \frac{11\pi}{6}$$

(D)
$$x = \frac{\pi}{6}, \frac{7\pi}{6}$$

(E)
$$x = \frac{\pi}{3}, \frac{4\pi}{3}$$

- (A)
- □ B)
- _ c)
 - D)
 - E)



If
$$f(x) = \frac{ax^2-x+b}{x^2+x}$$

has no vertical asymptotes, then

(A)
$$a = b = 0$$
.

(B)
$$a = b = 1$$
.

(C)
$$a = -1$$
 and $b = 0$.

(D)
$$a = -1$$
 and $b = 1$.

(E)
$$a = 0$$
 and $b = -1$.

Question **5**Not yet answered

Marked out of 4

Flag question

Let
$$f(x) = \begin{cases} (cx - 3)^3 & \text{if } x < 2 \\ c^2x^2 - 9 & \text{if } x \ge 2 \end{cases}$$
, where $c > 2$.

If $f(x)$ is continuous at $x = 2$, then $c = 2$

Answer:

The function $f(x) = \frac{x-2}{x^3-4x}$ has a vertical asymptote at x =

- $\mathbf{A)} \quad -2,0$
- B) -2
- C) 0
- D) 2
- E) -2, 0, 2

Question 2 Not yet answered Marked out of 4 ▼ Flag question If a and b are real numbers such that $\lim_{x\to 0}$ Then a+b=Answer:

The horizontal asymptote(s) of $f(x) = \frac{\sqrt{x^2-6x}}{3x}$ is (are)

A)
$$x = \frac{1}{3}$$
 and $x = -\frac{1}{3}$.

B)
$$y = \frac{1}{3}$$
 and $y = -\frac{1}{3}$.

C)
$$x = -2$$
 and $x = 2$.

D)
$$y = \frac{1}{3}$$
 only.

E)
$$y = -2$$
 and $y = 2$.

- (A)
- B)
- 0 c)
- O D)

Which of the following statements is (always) correct?

- A) If f is continuous at x = -1, then f is differentiable at x = -1.
- B) If f is continuous on [a, b] and f(a)f(b) < 0, then f(c) = 0 for some $c \in (a, b)$.
- C) If f(-1) = 5, then f'(-1) = 0.
- D) If f is continuous on (a, b), then f has an absolute minimum value f(c) where $c \in (a, b)$.
- E) $f(x) = (x+1)^{2/3}$ is differentiable on \mathbb{R} .

- O A)
- B)
- O c)

Question 8

Not yet answered

Marked out of 1

P Flag question

Let
$$4x \le g(x) + 3x \le x^4 - x^2 + 4$$
 for all x . Then $\lim_{x\to 1} g(x) =$

Answer:

سؤال 12 لم يتم الاجابة عليه بعد الدرجة من [آلا علم هذا السؤال Let $2x \le g(x) - 3x \le x^4 - x^2 + 2$ for all x. Then $\lim_{x\to 1}g(x)=$ Answer:



Answer:

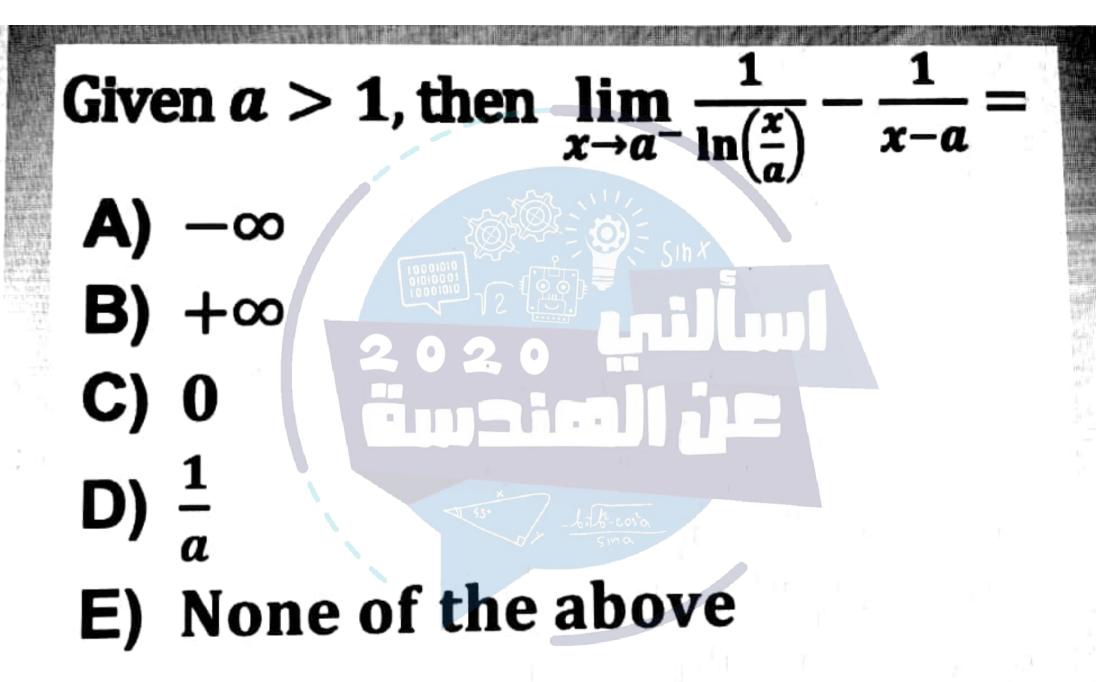
Given
$$0 \le \int_{e^{-5}}^{e^5} \sqrt{\frac{25 - (\ln x)^2}{x^2}} dx \le m$$
. The minimum value of $m = 1$

Answer:

Let
$$f(x) = \begin{cases} \frac{3 + \cos x}{4^x} & if & x < 0 \\ (2 - x)^2 & if & 0 < x < 1 \\ 4 + e^x \ln x & if & x > 1 \\ 10 & if & x \equiv 0 & or & x = 1 \end{cases}$$

Then f has removable discontinuity at

Answer.



Given
$$b > 0$$
, $b \ne 1$, then $\lim_{x \to \frac{\pi}{4}} \frac{b^{\tan x} - b}{x - \frac{\pi}{4}} =$

- **A)** −∞
- **B**) +∞
- C) $b \ln b$
- D) 2 ln b

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E) $2b \ln b$



Let
$$f(x) = \begin{cases} \frac{\cos 3x}{4^x} & if & x < 0 \\ (1+x)^2 & if & 0 < x < 1 \\ 7+e^x \ln x & if & x > 1 \\ 10 & if & x = 0 \text{ or } x = 1 \end{cases}$$

Then f has jump discontinuity at

Answer

Given a > 1, then $\lim_{x \to a^+} \frac{1}{\ln(\frac{x}{a})} - \frac{1}{x-a} =$

- **A)** −∞
- **B**) +∞
- C) 0
- D) $\frac{1}{a}$
- E) None of the above

- ⊸ A)
- ∪ в)
- ပ c)
- ບ D)
- ∪ E)

The horizontal asymptote(s) of $f(x) = \frac{7e^x + 2e^{-x}}{4e^x - e^{-x}}$ is (are)

A)
$$y = \frac{7}{4}$$
 only.

B)
$$x = \frac{7}{4}$$
 and $x = -2$.

c)
$$y = \frac{7}{4}$$
 and $y = -2$.

D)
$$y = \frac{1}{2}$$
 and $y = -7$.

E)
$$x = \frac{1}{2}$$
 and $x = -7$.



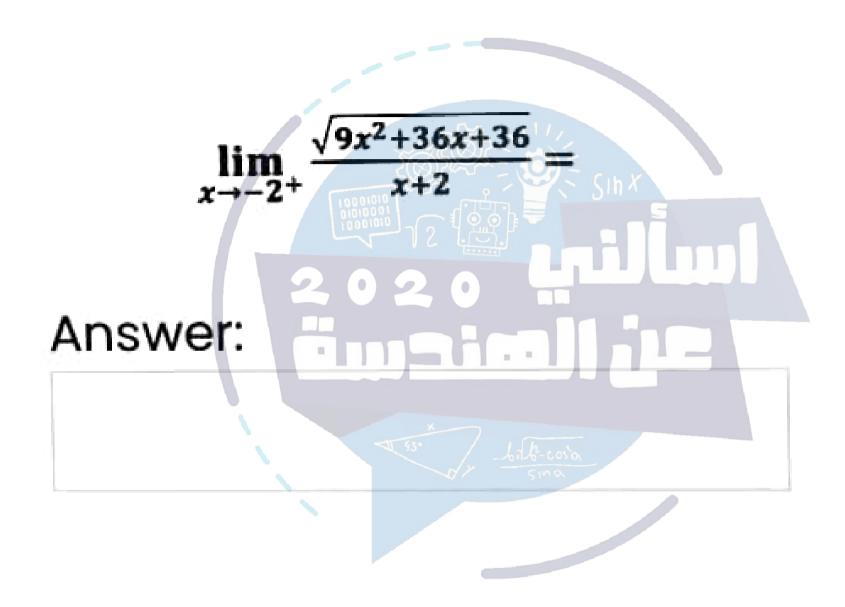
- O B)
- O c)
- \bigcirc D)
- () E)

Let
$$f(x) = \begin{cases} (cx-3)^3 & \text{if } x < 2 \\ c^2x^2 - 9 & \text{if } x \ge 2 \end{cases}$$
, where $c > 2$.

If f(x) is continuous at x = 2, then c =

Answer:





The function $f(x) = \frac{\log(81-x^4)+\tan^{-1}(2^x-3)}{x-7}$ is continuous on

- A) (-3,3).
- B) [-3,3].
- c) $(-\infty, -3) \cup (3, 7) \cup (7, \infty)$.
- D) $(-\infty, -3] \cup [3, 7) \cup (7, \infty)$.
- E) None of the above.

- \bigcirc B)
- O c)
- \bigcirc D)
- O E)

The values of α that make $\lim_{x\to \alpha^-} \sqrt{x^2 - 5x + 6}$ Does Not Exists are:

- A) [2,3]
- B) (2,3]
- (2,3)
- D) (2,3)
- E) $(-\infty, \infty)$

Select one:

- (A)
- ා в)
- () c)
- D)
- ි E)



B

The function $f(x) = \frac{x-2}{x^3-4x}$ has a vertical asymptote at x =

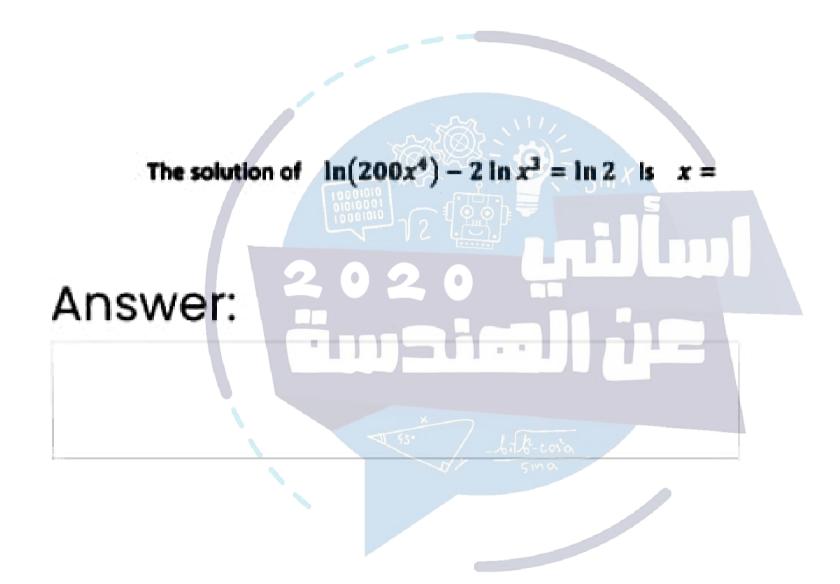
- A) -2,0
- B) -2
- C) 0
- D) 2
- E) -2, 0, 2

Select one:

- O A)
- ் B)
- ු c)
- D)
- ं E)



Clear my choice

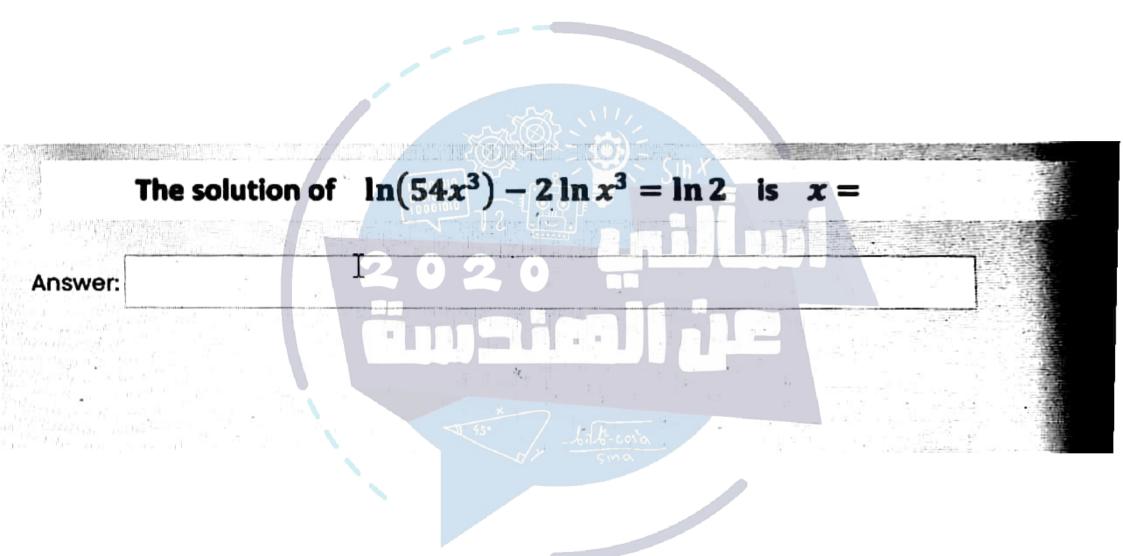


The function $f(x) = \frac{\log(81-x^4)+\tan^{-1}(2^x-7)}{x-5}$ is continuous on:

- A) [-3,3].
- B) (-3,3).
- c) $(-\infty, -3] \cup [3, 5) \cup (5, \infty)$.
- D) $(-\infty, -3) \cup (3, 5) \cup (5, \infty)$.
- E) None of the above.



- B)
- \circ c)
- D)
- E)



The function $f(x) = \frac{x+1}{x^3-x}$ has a vertical asymptote at x =

- A) 1
- B) -1
- c) 0
- D) -1, 0, 1
- E) 0, 1





Given a function with f(-3) = 7 and f'(-3) = 15, what is

$$\lim_{h\to 0}\frac{5h}{f(h-3)-7}$$
?

- A) $\frac{1}{3}$
- B) 15
- C) $\frac{5}{3}$
- D) 0
- E) 3



The function $f(x) = \frac{x+1}{x^3-x}$ has a vertical asymptote at x =

- A) 1
- B) -1
- c) 0
- D) -1, 0, 1
- E) 0,1



The function $f(x) = \frac{x+1}{x^3-x}$ has a vertical asymptote at x =

- A) 1
- B) -1
- C) 0
- D) -1, 0, 1
- E) 0, 1





The graph of $y = e^{-x} + 1$ has a horizontal asymptote with equation:

- A) x=0
- B) y=0
- $\mathbf{C)} \quad x = \mathbf{1}$
- D) y=1
- E) The graph has no horizontal asymptotes

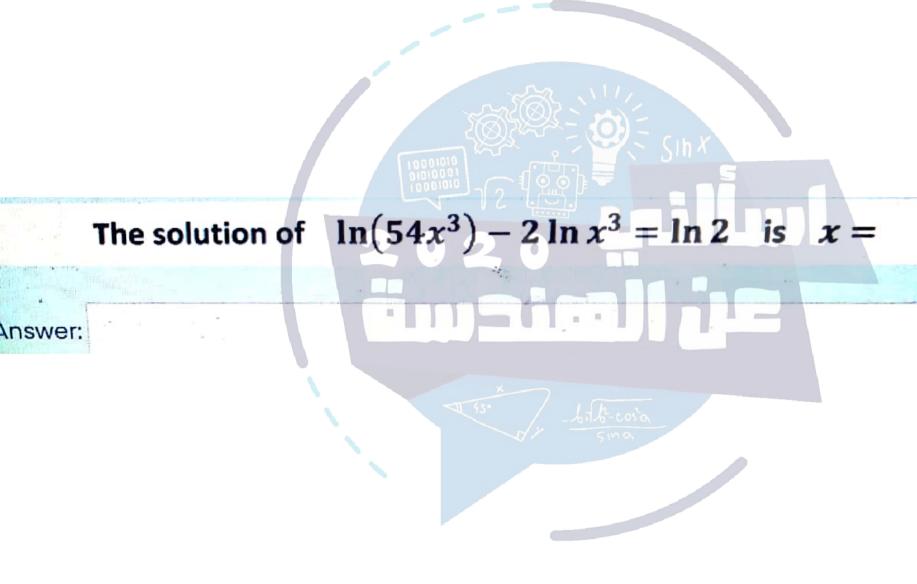


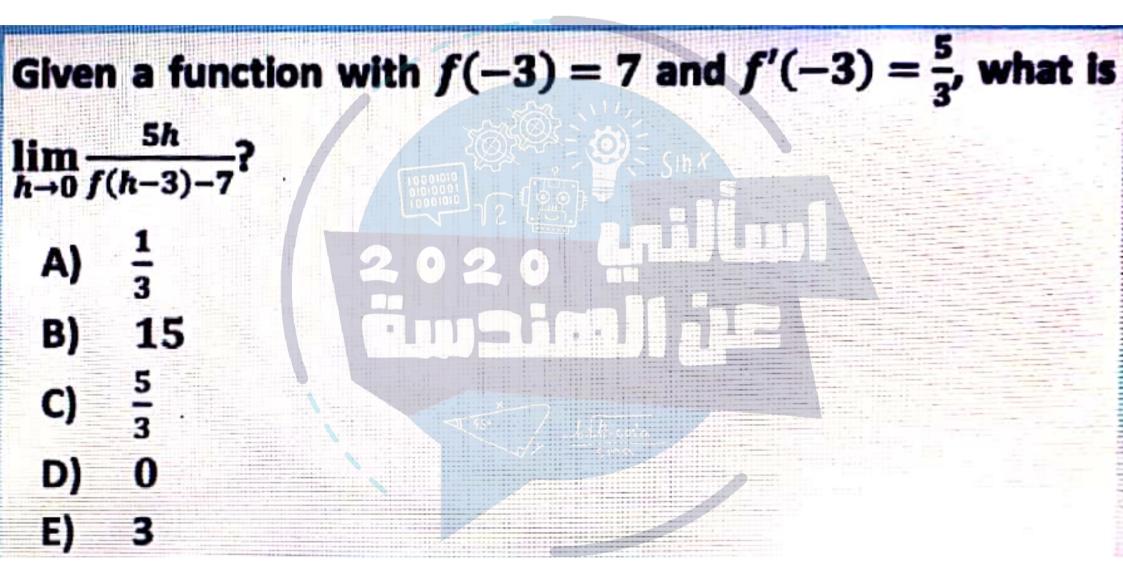


If f is a polynomial such that $\lim_{x\to 5}\frac{f(x)-a}{x-5}=8$ and $\lim_{x\to 5}\frac{x^2-ax+b}{f(x)-a}=1$.

Then b + 23 =







Suppose that
$$f(0) = -2$$
, $f'(0) = 2$, $g(0) = 2$, and $g'(0) = -2$.

If
$$h(x) = \frac{2e^x + g(x)}{f(x)\cos x}$$
, then $h'(0) =$

- A) 1
- B) -1
- C) 2
- D) -2
- E) None of the above



The graph of $y = e^{-x} + 1$ has a horizontal asymptote with equation:

- A) x=0
- B) y=0
- $\mathbf{C)} \quad x = \mathbf{1}$
- D) y=1
- E) The graph has no horizontal asymptotes

The function $f(x) = \frac{x+2}{x^3-4x}$ has a vertical asymptote at x =

- A) -2, 0, 2
- B) 0, 2
- c) 0
- D) -2
- E) 2



The graph of $y = e^{-x} + 1$ has a horizontal asymptote with equation:

- A) x=0
- B) y=0
- $C) \quad x=1$
- D) y=1
- E) The graph has no horizontal asymptotes

The function
$$f(x) = \frac{\log(16-x^4)+\tan^{-1}(2^x-5)}{x-3}$$
 is continuous on:

A)
$$(-2,2)$$
.

B)
$$[-2,2]$$
.

C)
$$(-\infty, -2) \cup (2, 3) \cup (3, \infty)$$
.

D)
$$(-\infty, -2] \cup [2, 3) \cup (3, \infty)$$
.

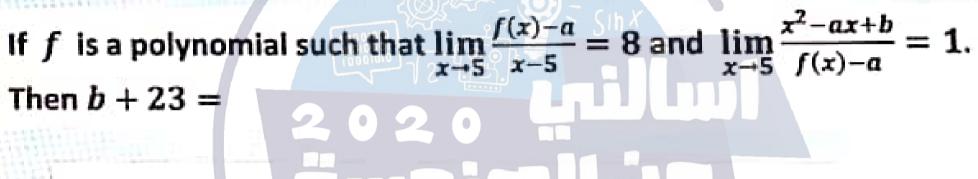
The solution of
$$\ln(64x^4) - 2\ln x^3 = \ln 4$$
 is $x =$

Answer: 4

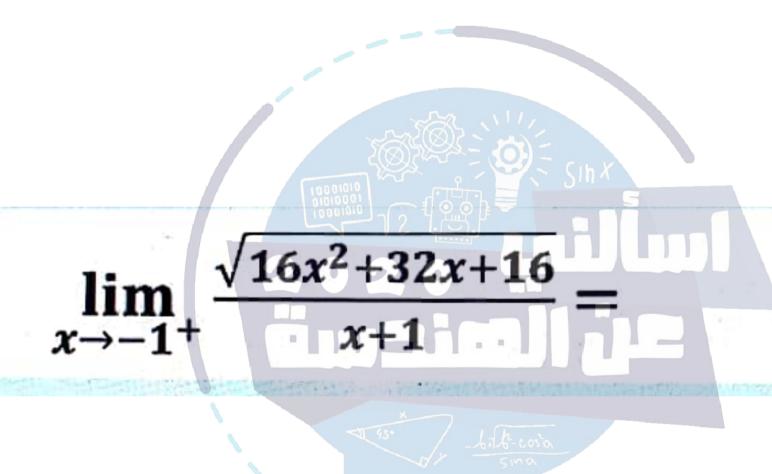


We get the graph of $y = 3 + 2^{x+1}$ by shifting the graph of $y = 2^x$

- A) 1 unit left and 3 units up.
- B) 1 unit left and 3 units down.
- C) 1 unit right and 3 units down.
- D) 1 unit right and 3 units up.
- E) 3 units left and 1 unit up.

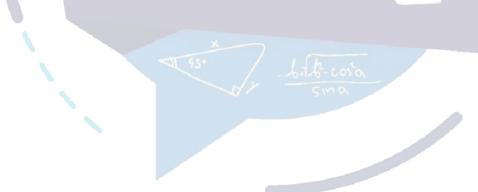


Answer:





If
$$f$$
 is a polynomial such that $\lim_{x\to 5} \frac{f(x)-a}{x-5} = 8$ and $\lim_{x\to 5} \frac{x^2-ax+b}{f(x)-a} = 1$. Then $b+53=$



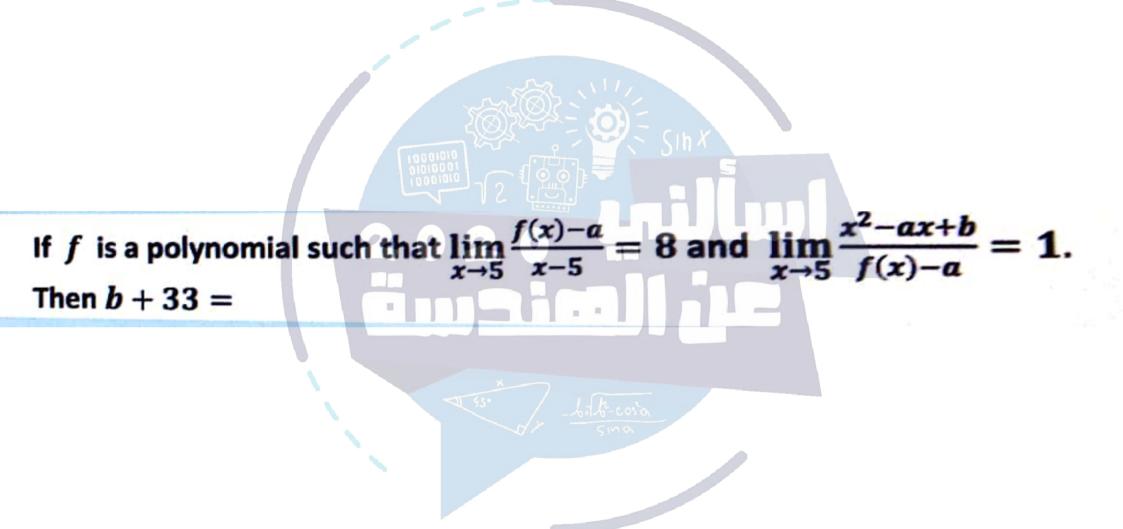
The function $f(x) = \frac{\log(81-x^4)+\tan^{-1}(2^x-3)}{x-7}$ is continuous on:

B)
$$[-3,3]$$
.

c)
$$(-\infty, -3) \cup (3, 7) \cup (7, \infty)$$
.

D)
$$(-\infty, -3] \cup [3, 7) \cup (7, \infty)$$
.

E) None of the above.



The solution of $\ln(54x^3) - 2\ln x^3 = \ln 2$ is x =

Answer:

3

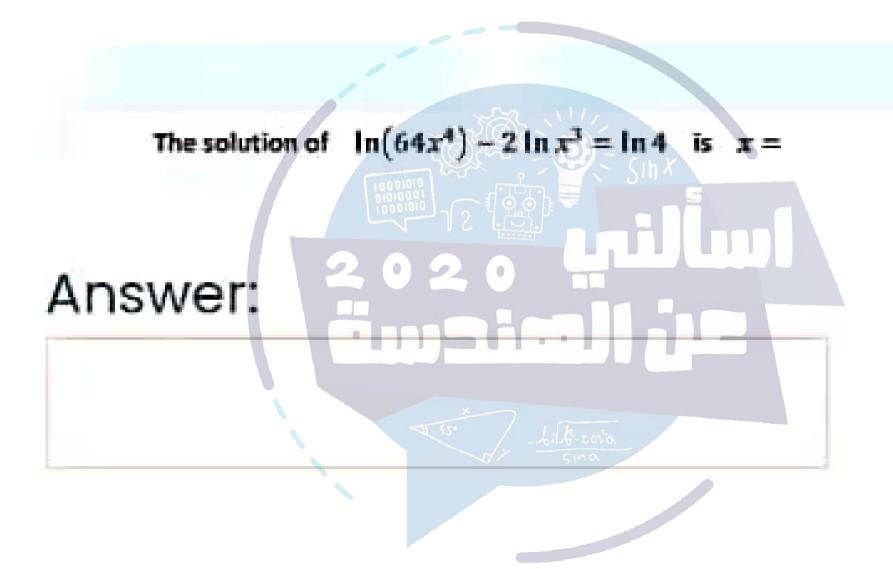
$$\lim_{x \to -1^+} \frac{\sqrt{16x^2 + 32x + 16}}{x + 1} =$$

Answer

$$\sec\left(\cos^{-1}\frac{1}{6}\right) =$$

The values of α that make $\lim_{x\to a^+} \sqrt{x^2 - 5x + 6}$ Does Not Exists are:

- A) [2,3]
- B) (2,3]
- (2,3)
- D) (2,3)
- **E)** (−∞, ∞).



The function $f(x) = \frac{\log(16-x^2) + \tan^{-1}(2^2-7)}{x-5}$ is continuous on:

- A) [-2,2].
- B) (-2,2).
- c) $(-\infty, -2] \cup [2, 5) \cup (5, \infty)$.
- D) $(-\infty, -2) \cup (2, 5) \cup (5, \infty)$.
- E) None of the above.

The values of α that make $\lim \sqrt{x^2-5x+6}$ Does Not Exists are:

- A) [2,3]
- B) (2,3]
- C) [2,3)
- D) (2,3)
- E) (-----, co)





The function $f(x) = \frac{x-1}{x^3-x}$ has a vertical asymptote at x =

- A) 1
- B) -1
- C) 0
- D) -1,0
- E) -1, 0, 1





If f is a polynomial such that
$$\lim_{x\to 5} \frac{f(x)-a}{x-5} = 8$$
 and $\lim_{x\to 5} \frac{x^2-ax+b}{f(x)-a} = 1$.
Then $b+23=$

$$\lim_{x \to -2^+} \frac{4x^2 + 16x + 16}{x + 2}$$

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Given
$$f(x) = \frac{3}{1+x}$$
 and $g(x) = \frac{4}{x+2}$. The domain of $(f \circ g)(x)$ is:

A)
$$(-\infty, \infty) - \{-1\}.$$

B)
$$(-\infty, \infty) - \{-2\}.$$

c)
$$(-\infty, \infty) - \{-6\}$$
.

.

The graph of $y = e^{-t} + 1$ has a horizontal asymptote with equation:

- $A) \quad x = 0$
- B) v = 0
- c) x=1
- D) y = 1
- E) The graph has no horizontal asymptotes

The function $f(x) = \frac{\log(81-x^4)+\tan^{-1}(2^x-3)}{x-7}$ is continuous on:

- A) (-3,3).
- B) [-3,3].
- **C)** $(-\infty, -3) \cup (3,7) \cup (7,\infty)$.
- **D)** $(-\infty, -3] \cup [3, 7) \cup (7, \infty)$.
- E) None of the above.