

If  $e^y + y^2 + xy + 8x = 9$ , then  $y''$  at the point  $(1, 0)$  equals

- A) -20
- B) -6
- C) 4
- D) 24
- E) None of the above

Select one:

- 
- 
- 
- 
- 

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

اسألني  
عن الهندسة

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

Select one:

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

اسألني  
2020  
عن الهندسة

The linear approximation of  $f(x) = \frac{1}{4-x}$  at  $a = 5$  is:

- A)  $y = x$   
B)  $y = 1 + x$   
C)  $y = -1 - x$   
D)  $y = -1 + x$   
E) None of the above

The equation of the tangent line to the curve  $(x^2 + y^2)^2 = 4(x^2 - y^2)$  at the point  $(-\frac{\sqrt{6}}{2}, \frac{\sqrt{2}}{2})$  is

- A)  $y = -x + \frac{\sqrt{2}}{2}$
- B)  $y = x + \frac{\sqrt{2}}{2}$
- C)  $y = \frac{\sqrt{2}}{2}$
- D)  $y = -6x + \frac{\sqrt{2}}{2}$
- E)  $y = -\frac{\sqrt{6}}{2}x + \frac{\sqrt{2}}{2}$

Select one:

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

اسألني  
2020  
عن الهندسة

Suppose that  $f(0) = -1$ ,  $f'(0) = -8$ ,  $g(0) = -4$ , and  $g'(0) = 4$ .

If  $h(x) = \frac{5e^x + g(x)}{f(x) \cos x}$ , then  $h'(0) =$

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

Select one:

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

اسألني  
عن الهندسة

An equation of the tangent line to the curve

$y \sin 2x = x \cos 2y$  at the point  $\left(\frac{\pi}{2}, \frac{\pi}{4}\right)$  is

A)  $y = x + \frac{\pi}{2}$

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

C)  $y = x + \frac{\pi}{4}$

D)  $y = \frac{\pi}{4} - x$

E)  $y = \frac{x}{2}$

The linear approximation of  $f(x) = \frac{1}{1-x}$  at  $a = 0$  is:

- A)  $y = 1 + x$
- B)  $y = 1 - x$
- C)  $y = -1 - x$
- D)  $y = x$
- E) None of the above

Select one:

- A)

D)

E)





If  $g(x) = f(2x + 5 + \tan^{-1} x)$ , and  $g'(0) = 10$ . Then  $f'(5) =$

- A) 2
- B) 4
- C) 5
- D) 6
- E) None of the above

Select one:

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

اسألني  
2020  
عن الهندسة



The curve  $y = \sin^{-1} x$  has a tangent line parallel to the line  $y = x + 1$  when  $x =$

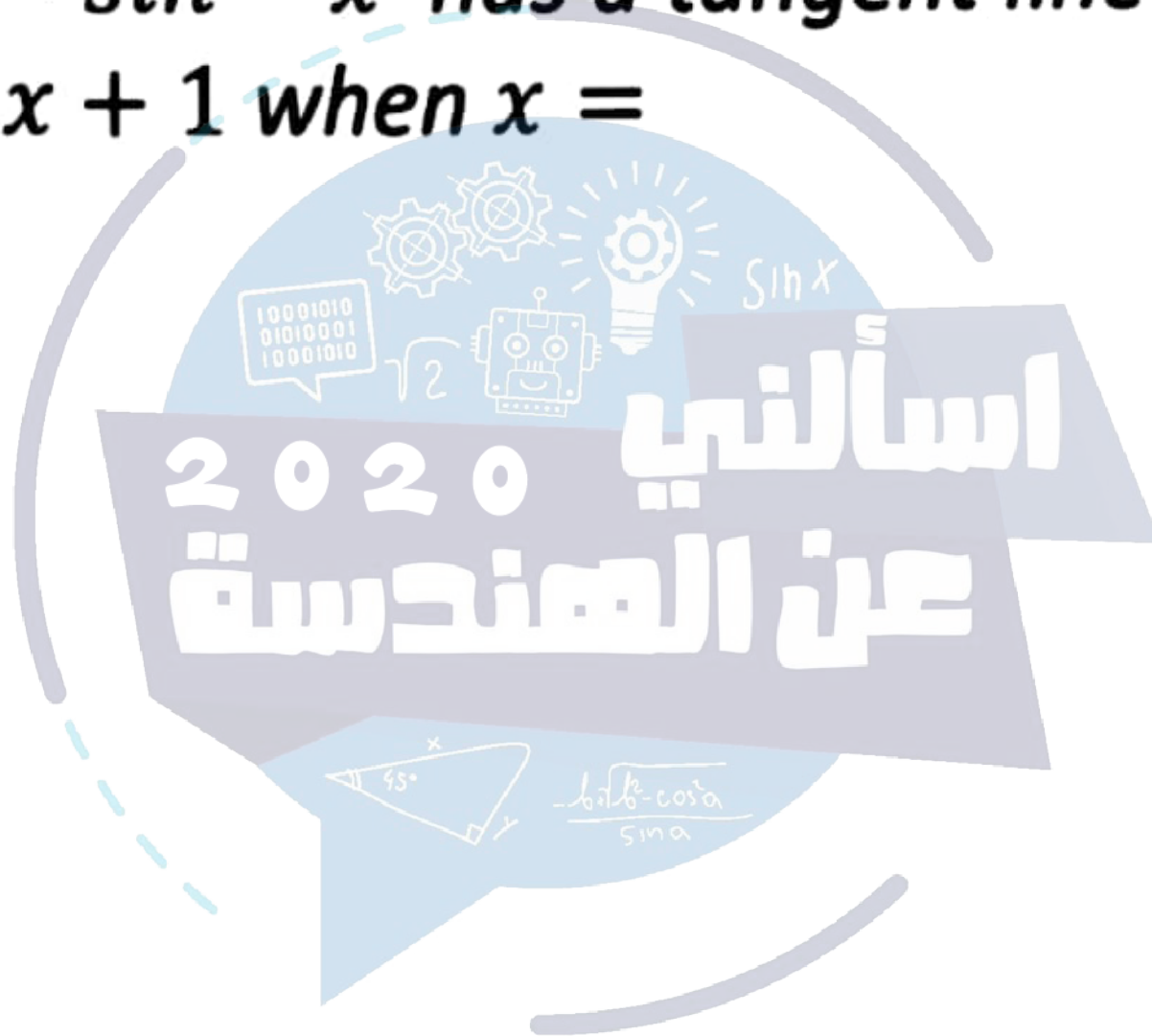
A)  $\pm 2$

B)  $\pm \frac{1}{3}$

C)  $\pm \frac{1}{2}$

D)  $\pm 1$

E) 0



Given  $\frac{d}{dx} f(2^x) = 4^x \ln 16$ , where  $x > 0$ . Then  $f'(3) =$

The function  $f(x) = (\cos x) e^{\sqrt{3}x}$ ,  $0 < x < 2\pi$ , 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)  $x = \frac{\pi}{3}, \frac{4\pi}{3}$

Select one.

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



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

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

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

Select one:

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

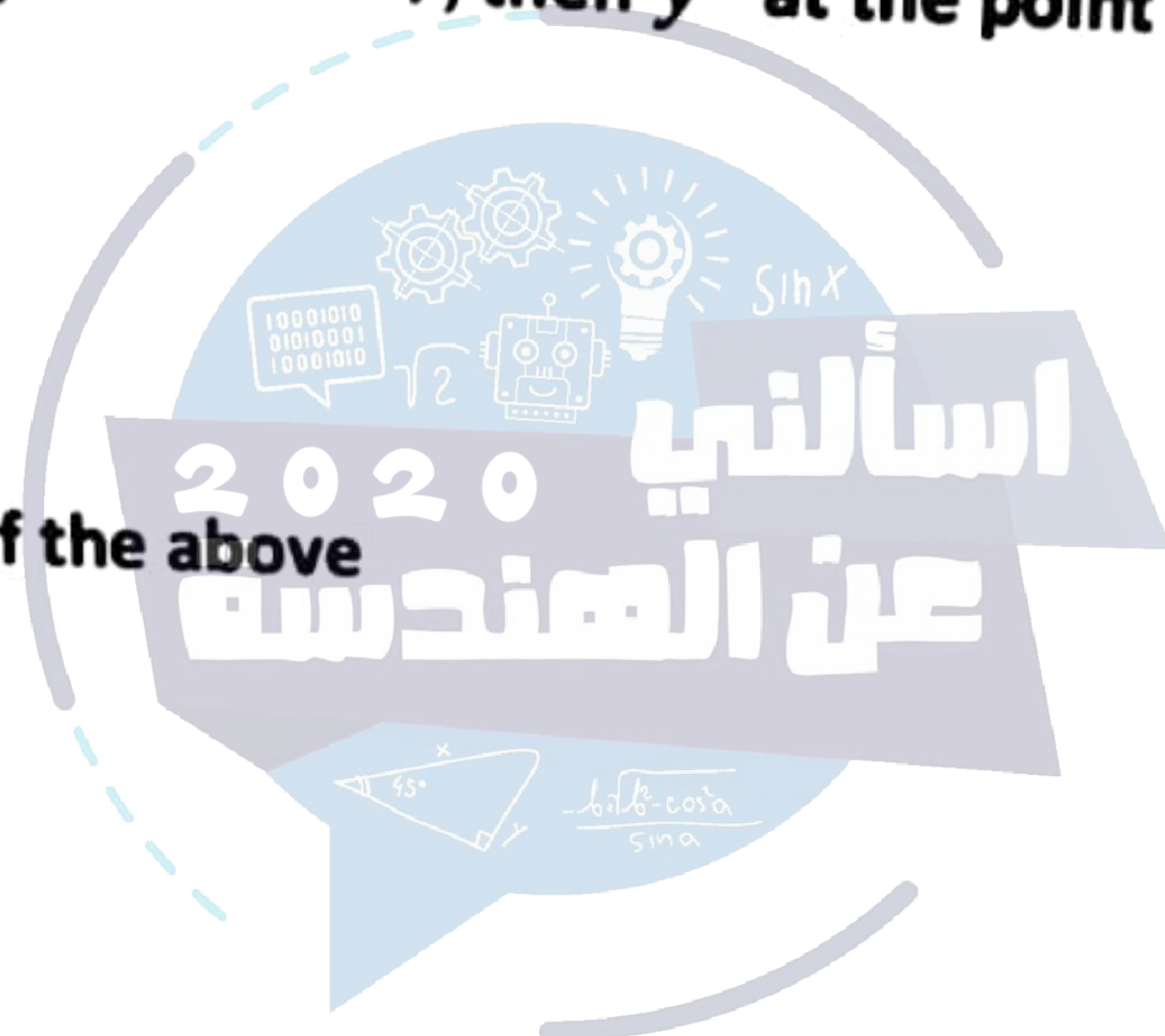
اسألني  
2020  
عن الهندسة

If  $e^y + y^2 + xy - 8x = -7$ , then  $y''$  at the point  $(1, 0)$  equals

- A) -28
- B) 20
- C) 4
- D) 8
- E) None of the above

Select one .

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



Let  $f(x) = \frac{\pi}{2} + 5x - \cos^{-1}(x)$ , then the equation of the normal line to the curve at the point  $(0, 0)$  is

A)  $y = x + 2$

B)  $y = 6x$

C)  $y = -x + 2$

D)  $y = -\frac{1}{6}x$

E)  $y = \frac{1}{6}x$

Select one:

A)

B)

C)

D)

If  $g(x) = f(2x + 1 + \tan^{-1} x)$ , and  $g'(0) = 6$ . Then  $f'(1) =$

- A) 2
- B) 4
- C) 5
- D) 6
- E) None of the above

Select one:

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





Suppose that  $f(0) = 3$ ,  $f'(0) = -3$ ,  $g(0) = -2$ , and  $g'(0) = 2$ .

If  $h(x) = \frac{3e^x + g(x)}{f(x) \cos x}$ , then  $h'(0) =$

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

Select one

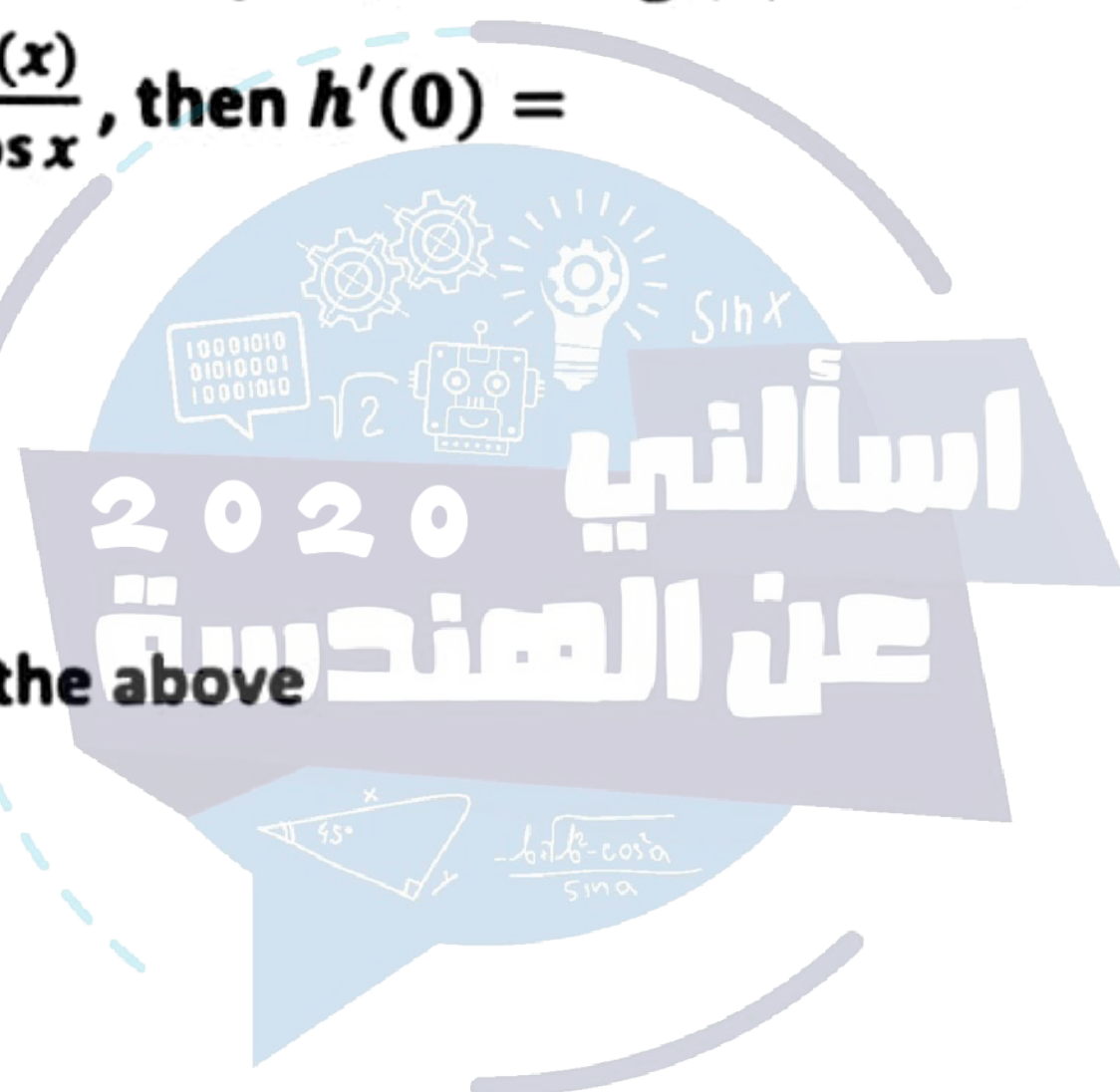
A)

B)

C)

D)

E)



$g(x) = f(2x - 1 + \tan^{-1} x)$ , and  $g'(0) = 12$ . Then  $f'(-1) =$

- A) 2
- B) 4
- C) 5
- D) 6
- E) None of the above



Select one

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

The equation of the tangent line to the curve  $(x^2 + y^2)^2 = 4(x^2 - y^2)$  at the point  $(-\frac{\sqrt{6}}{2}, \frac{\sqrt{2}}{2})$  is

- A)  $y = -x + \frac{\sqrt{2}}{2}$
- B)  $y = x + \frac{\sqrt{2}}{2}$
- C)  $y = \frac{\sqrt{2}}{2}$
- D)  $y = -6x + \frac{\sqrt{2}}{2}$
- E)  $y = -\frac{\sqrt{6}}{2}x + \frac{\sqrt{2}}{2}$

Select one:

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

اسألني  
2020  
عن الهندسة

The linear approximation of  $f(x) = \frac{1}{3-x}$  at  $a = 4$  is:

- A)  $y = x$
- B)  $y = 1 + x$
- C)  $y = -1 + x$
- D)  $y = -1 - x$
- E) None of the above

Select one:

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

اسألني  
2020  
عن الهندسة

Let  $f(x) = \frac{\pi}{2} + 5x - \cos^{-1}(x)$ , then the equation of the normal line to the curve at the point  $(0, 0)$  is

- A)  $y = x + 2$
- B)  $y = 6x$
- C)  $y = -x + 2$
- D)  $y = -\frac{1}{6}x$
- E)  $y = \frac{1}{6}x$

Select one:

A)

B)

C)

D)

E)

اسألني  
2020  
عن الهندسة

The equation of the tangent line to the curve

$(x^2 + y^2)^2 = 4(x^2 - y^2)$  at the point  $(-\frac{\sqrt{6}}{2}, \frac{\sqrt{2}}{2})$  is

A)  $y = -x + \frac{\sqrt{2}}{2}$

B)  $y = x + \frac{\sqrt{2}}{2}$

C)  $y = \frac{\sqrt{2}}{2}$

D)  $y = -6x + \frac{\sqrt{2}}{2}$

E)  $y = -\frac{\sqrt{6}}{2}x + \frac{\sqrt{2}}{2}$

Suppose that  $f(0) = 3$ ,  $f'(0) = -3$ ,  $g(0) = -2$ , and  $g'(0) = 2$ .

If  $h(x) = \frac{3e^x + g(x)}{f(x) \cos x}$ , then  $h'(0) =$

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

Select one:

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



اسألني  
2020  
عن الهندسة



Given  $f(x) = -9 - 4x^2$  for  $-1 \leq x \leq 1$  and  $g(x) = 4 - (x - 4)^2$  for  $2 \leq x \leq 6$ . If  $l$  is a tangent line for both  $f$  and  $g$ , then the slope of the tangent line  $l$  equals:

اسألني  
عن الهندسة

Answer



Given  $f(x) = -9 - 4x^2$  for  $-1 \leq x \leq 1$  and  $g(x) = 4 - (x - 4)^2$  for  $2 \leq x \leq 6$ . If  $l$  is a tangent line for both  $f$  and  $g$ , then the slope of the tangent line  $l$  equals:

Answer:

اسألني  
2020  
عن الهندسة

If  $\ln[\cosh(2x) + \sinh(2x)] - \ln[\cosh(x) - \sinh(x)] = 3$

then  $x =$

- A) 1
- B) 0
- C) 3
- D)  $\frac{1}{3}$
- E) None of the above

اسألني  
2020  
عن الهندسة

For what values of  $a$  and  $b$  is the line  $2x - y = b$  tangent to the parabola  $y = ax^2$  when  $x = 2$ .

A)  $a = -\frac{1}{2}$  and  $b = 2$

B)  $a = \frac{1}{2}$  and  $b = -2$

C)  $a = -\frac{1}{2}$  and  $b = -2$

D)  $a = \frac{1}{2}$  and  $b = 2$

E) None of the above

Select one:

A)

B)

If  $x^2 + y^2 + xy - 8x = -7$ , then  $y''$  at the point  $(1, 0)$  equals

- A) -20
- B) 20
- C) 4
- D) None of the above

Select one:

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

اسألني  
2020  
عن الهندسة

If  $\ln[\cosh(x) + \sinh(x)] - \ln[\cosh(2x) - \sinh(2x)] = 6$   
then  $x =$

- A) 1
- B) 0
- C) 3
- D)  $-\frac{1}{3}$
- E) None of the above

Select one

- A
- B
- C
- D
- E

اسألني  
2020  
عن الهندسة

If  $f(x)$  is one to one function, then the value of  $\frac{d}{dx} f^{-1}(x)$  when  $x = 2$  using the table below equals:

- A)  $\frac{1}{2}$
- B)  $\frac{1}{3}$
- C)  $\frac{1}{4}$
- D)  $\frac{1}{5}$
- E)  $\frac{1}{6}$

$x$	$f(x)$	$f'(x)$
1	2	$-\frac{1}{3}$
2	-1	3
3	-3	4

Select one:

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

اسألني  
2020  
عن الهندسة



If  $g(x) = f(2x + 5 + \tan^{-1} x)$ , and  $g'(0) = 18$ . Then  $f'(5) =$

- A) 2
- B) 4
- C) 5
- D) 6
- E) None of the above

اسألني  
2020  
عن الهندسة

The curve  $y = \tan^{-1} x$  has a tangent line parallel to the line  $y = 1 + \frac{1}{5}x$  when  $x =$

A)  $\pm 3$

B)  $\pm \frac{1}{3}$

C)  $\pm \frac{1}{2}$

D)  $\pm 1$

E)  $\pm 2$

Select one:

A



If  $f(x)$  is one to one function, then the value of  $\frac{d}{dx} [f^{-1}(x)]$  when  $x = 2$  using the table below equals:

- A)  $\frac{1}{2}$   
 B)  $\frac{1}{3}$   
 C)  $\frac{1}{4}$   
 D)  $-1$   
 E)  $-3$

$x$	$f(x)$	$f'(x)$
1	-1	2
2	2	3
3	-3	4

2020

اسألني

اختر أحد الخيارات

عن الهندسة

(A)

(B)

(C)

(D)

(E)

If  $e^y + y^2 + xy + 4x = 5$ , then  $y''$  at the point  $(1, 0)$  equals

- A) -4
- B) -2
- C) 8
- D) 20
- E) None of the above

Select one:

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



Let  $f(x) = -5x - 10 + \ln x$ . Then,  $(f^{-1})'(-15) =$

A)  $\frac{1}{15}$

B)  $-\frac{1}{4}$

C)  $\frac{1}{4}$

D)  $\frac{1}{-85 + \ln 15}$

E)  $-\frac{1}{15}$



Assume  $g(x) = f(e^{kx})$ , where  $f$  is a differentiable function and satisfies the following table:

$x$	$f(x)$	$f'(x)$
0	2	3
1	5	4

Then  $g'(0) =$

- A) 0
- B)  $k$
- C)  $2k$
- D)  $3k$
- E)  $4k$

Select one:

- A)
- B)
- C)

The equation of the tangent line to the curve  $(x^2 + y^2)^2 = 4(x^2 - y^2)$  at the point  $(-\frac{\sqrt{6}}{2}, \frac{\sqrt{2}}{2})$  is

A)  $y = -x + \frac{\sqrt{2}}{2}$

B)  $y = x + \frac{\sqrt{2}}{2}$

C)  $y = \frac{\sqrt{2}}{2}$

D)  $y = -6x + \frac{\sqrt{2}}{2}$

E)  $y = -\frac{\sqrt{6}}{2}x + \frac{\sqrt{2}}{2}$

اسألني  
2020  
اختراع الخيارات  
عن الهندسة

(A)

(B)

(C)

(D)

(E)



## Question 15

Not yet answered

Marked out of 1

Flag question

2020

اسألني

Given  $f(x) = 9 - 4x^2$  for  $-1 \leq x \leq 1$  and  $g(x) = 4 - (x - 4)^2$  for  $2 \leq x \leq 6$ . If  $l$  is a tangent line for both  $f$  and  $g$ , then the slope of the tangent line  $l$  equals:

Answer:

## Question 9

Not yet answered

Marked out of 1

Flag question

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

If  $h(x) = \frac{2x^2 + g(x)}{f(x) + 1}$ , then  $h'(0) =$

A) 1

B) -1

C) 2

D) -2

E) None of the above

Select one:

A)

B)

C)

D)

E)

[Clear my choice](#)

If  $\ln[\cosh(4x) + \sinh(4x)] + \ln[\cosh(2x) - \sinh(2x)] = 1$   
then  $x =$

- A) 1
- B) 0
- C) 3
- D)  $\frac{1}{2}$
- E) None of the above

Select one:

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

اسألني  
عن الهندسة

Let  $f(x) = \frac{\pi}{2} + 5x - \cos^{-1}(x)$ , then the equation of the normal line to the curve at the point  $(0, 0)$  is

- A)  $y = x + 2$
- B)  $y = 6x$
- C)  $y = -x + 2$
- D)  $y = -\frac{1}{6}x$
- E)  $y = \frac{1}{6}x$

Select one:

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

اسألني  
عن الهندسة

An equation of the tangent line to the curve

$y \sin 2x = x \cos 2y$  at the point  $\left(\frac{\pi}{2}, \frac{\pi}{4}\right)$  is

A)  $y = x + \frac{\pi}{2}$

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

C)  $y = x + \frac{\pi}{4}$

D)  $y = \frac{\pi}{4} - x$

E)  $y = \frac{x}{2}$

اسألني  
2020  
عن الهندسة

Select one

A

## Question 5

Not yet answered

Marked out of 1

Flag question

If  $\ln|\cosh(3x) + \sinh(3x)| + \ln|\cosh(x) - \sinh(x)| = 6$   
then  $x =$

- A) 1
- B) 0
- C) 3
- D)  $\frac{2}{3}$
- E) None of the above

Select one:

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

For what values of  $a$  and  $b$  is the line  $2x + y = b$  tangent to the parabola  $y = ax^2$  when  $x = 2$ .

- A)  $a = -\frac{1}{2}$  and  $b = 2$
- B)  $a = \frac{1}{2}$  and  $b = -2$
- C)  $a = -\frac{1}{2}$  and  $b = -2$
- D)  $a = \frac{1}{2}$  and  $b = 2$
- E) None of the above

Select one:

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

اسألني  
2020  
عن الهندسة



Given a function with  $f(-3) = 7$  and  $f'(-3) = \frac{5}{3}$ , what is

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

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

Select one:

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





سؤال 7

لم يتم الاجابة عليه بعد

الدرجة من 1

علم هذا السؤال

The tangent line to the function  $f(x) = x^2 - 4x$  is perpendicular to the line  $6y + x = 0$  at  $x =$

- (A) -1
- (B) 3
- (C) 4
- (D) 5
- (E) -2

2020

اسألني

عن الهندسة

اختر أحد الخيارات

(A)

(B)

(C)

(D)

(E)

The equation of the tangent line to the curve  $(x^2 + y^2)^2 = 4(x^2 - y^2)$  at the point  $(-\frac{\sqrt{6}}{2}, \frac{\sqrt{2}}{2})$  is

A)  $y = -x + \frac{\sqrt{2}}{2}$

B)  $y = x + \frac{\sqrt{2}}{2}$

C)  $y = \frac{\sqrt{2}}{2}$

D)  $y = -6x + \frac{\sqrt{2}}{2}$

E)  $y = -\frac{\sqrt{6}}{2}x + \frac{\sqrt{2}}{2}$

Select one:

A)

B)

C)

D)

E)

اسألني  
عن الهندسة