PRINTABLE VERSION



Ouiz 23

Given that

$$\int_0^1 f(x) \, dx = 4, \int_0^3 f(x) \, dx = 2, \text{ and } \int_3^4 f(x) \, dx = 3 \text{ find } \int_0^4 f(x) \, dx.$$

a)
$$J-1$$
 $\int_0^4 f(x) dx = \int_0^3 f(x) dx + \int_3^4 f(x) dx$

b) 2

= 2+3=5

- c) = 5
- d) 3
- e) 9

Question 2

Given that x > -1 and $F(x) = \int_{0}^{x} t\sqrt{t+1} dx$ find F(3).

a)
$$= \int_{3}^{3} t \sqrt{t+1} dt = 0$$

- **b**) 2
- \mathbf{c}) 0
- d) 93

e) $=\frac{11}{4}$

Question 3

Given that x > -1 and $F(x) = \int_{-\infty}^{\infty} t \sqrt{t+1} dx$, find F'(x).

By F. T. C. (fundamental theorem)

b) $\sqrt{x}\sqrt{x+1}$ $F'(X) = X\sqrt{X+1}$

- c) $\sqrt{x+1} + 1/2 \frac{x}{\sqrt{x+1}}$
- d) $\sqrt{x+1}$
- e) x

Question 4

Given that x > -7 and $F(x) = \int_{0}^{x} t \sqrt{t+7} \, dx$, find F'(4).

- a) $\frac{13\sqrt{11}}{11}$ By F.T.C. F(X) = $X\sqrt{X+7}$ b) $\sqrt{11}$ C) $-4\sqrt{11}$ F(4) = $4\sqrt{4+7} = 4\sqrt{11}$.
- d) 11
- e) = 4

Ouestion 5

Given that $F(x) = \int_0^x \frac{1}{t^2 + 25} dx$, find F'(-5).

a)
$$\frac{1}{25}$$
 By F(T, C,
b) -1 $F(X) = \frac{2}{X+25}$

c)
$$-\frac{1}{50}$$

d) -0 $+(-5) = \frac{1}{(-5)^{2}} = \frac{1}{50}$

e)
$$=\frac{1}{250}$$

Ouestion 6

Given that $F(x) = \int_0^x \frac{1}{t^2 + 4} dx$, find F''(x).

a)
$$\frac{6x^2-8}{(x^2+4)^3}$$
 By F.T.C. $F(X) = \frac{1}{X^2+4}$
b) $\frac{1}{4}$ $F(X) = \frac{-2X}{(X^2+4)^2}$

b)
$$= \frac{1}{4}$$

c)
$$=\frac{1}{x^2+4}$$

d)
$$\sqrt{\frac{-2x}{(x^2+4)^2}}$$

Question 7

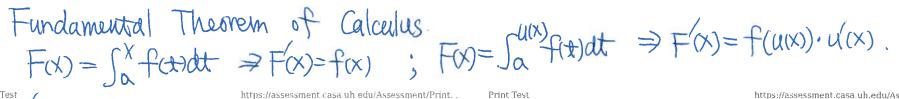
Given that $F(x) = \int_0^a \sqrt{t^2 + 9} dx$ find F'(5)

$$F(x) = -\int_{0}^{x} \sqrt{t^{2}+9} dt$$

b)
$$-\sqrt{34}$$
 $F(x) = -\sqrt{x^2+9}$

c) =0
$$f(5) = -\sqrt{5^2 + 9} = -\sqrt{34}$$

e)
$$=\frac{5\sqrt{34}}{34}$$



Print Test

 $\Rightarrow x^3 \sin(x^2)$.

https://assessment.casa.uh.edu/Assessment/Print

(a is a given constant)

Find the derivate of $F(x) = \int_{a}^{x^{+}} t \sin(t) dx$ $F(x) = \left[x^2 \sin(x^2)\right] \cdot (x^2)$

a)
$$\sin\left(x^2\right) + x^2\cos\left(x^2\right)$$

$$b) = x^2 \sin\left(x^2\right)$$

c)
$$2x^2\sin(x)$$

$$\mathbf{d}) = 2x^3 \sin\left(x^2\right)$$

e)
$$= x \sin(x)$$

Question 9

Find the derivate of $F(x) = \int_{a}^{x \cos(x)} \sqrt{49 - t^2} dx$

a)
$$\sqrt{(\cos(x) - x\sin(x))}\sqrt{49 - x^2}$$

b)
$$= (\cos(x) - x\sin(x))\sqrt{49 - x^2(\cos(x))^2}$$

c)
$$\sqrt{49 - x^2(\cos(x))^2}$$

d)
$$\sim \sqrt{49-x^2}$$

e)
$$= -\frac{x\cos(x)}{\sqrt{49 - x^2(\cos(x))^2}}$$

Question 10

Find a formula for f(x) given that f is continuous and

$$-x^4 + x^2 - 3x = \int_0^x f(t) dt.$$
 Do derivative on both sides
$$\text{we have } -4x^3 + 2x - 3 = f(x)$$

a)
$$f(x) = -4x^3 + 2x - 3$$

b)
$$f(x) = -1/5 x^5 + 1/3 x^3 - 3/2 x^2$$

c)
$$f(x) = -x^1 + x^2 - 3x$$

d)
$$f(x) = -x^4 + x^2 - 2x$$

e)
$$f(x) = -1/5x^5 + 1/3x^3 - 3/2x^2 - 3$$

$$F(x) = \sqrt{49 - (x \cos(x))^2} \cdot (x \cos(x))$$

$$= (\cos(x) - x \sin(x)) \sqrt{49 - x^2 \cos^2(x)}$$

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