SIDE OF PAPER ONLY

What is the norm of the subdivision.

$x_0 = 0.00$, $x_1 = 0.10$, $x_2 = 0.30$, $x_3 = 0.41$, $x_4 = 0.60$

$x_5 = 0.75$, $x_6 = 0.85$, $x_7 = 0.99$ $x_8 = 1.00$ ξ?

2. $\int_1^2 x^3 + 3x^2 + 1 + x^{-2}\,dx$

3. $\int_0^2 x(x^2+1)^{\frac{1}{2}}\,dx$

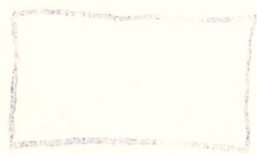
4. $\int \frac{t^2 + t}{t^{\frac{1}{3}}}\,dt$

5. $\int \frac{(x+1)\,dx}{(x^2+2x+27)^2}$

6. Find the max and min values of $\int_0^2 (u^2+1)^{\frac{1}{2}}\,du$.

7. Find the area enclosed by $x=1$, $x=3$, $y=x^3$.

8. State one of the Fundamental Theorems of Calculus

9. 

Find the Total force on this vertical rectangle due to fluid pressure given that this fluid has a density $w = 50\ lb/ft^3$.

10. Find the area of all bounded regions between $y=x$, $y=x^3$

MATH 152 TEST 1B BE NEAT
SHOW ALL WORK ONE SIDE OF PAGES ONLY

1. $\int_1^{10} x^3 + x^2 + 10 - x^{-2}\,dx$

2. $\int_0^3 x^2(4x^3+1)^{\frac{1}{2}}\,dx$

3. $\int u^{3/4}(u+u^{-1})\,du$

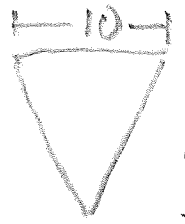
4. $\int \frac{(x+1)}{(x^2+2x-24)^2}\,dx$

5. Find the min & max values of $\int_1^{10} \frac{dx}{1+x^2}$.

6. Find the Area enclosed by $x=-1, x=1, y=0, y=x^4$.

7. Give the definition for $\int_a^b f(x)\,dx$

8. Find the Area of all bounded regions between $y=x$ and $y=x^3$

9. 

Find the total force on this vertical isosceles triangle due to fluid pressure given that the fluid level is at the top of the picture and $w = 50\ lb/ft^3$.

10. Find the area between $y^2 = x-1$ and $y = x-3$.

MATH 152 TEST II BE NEAT SHOW ALL WORK

ONE SIDE OF EACH PAGE ONLY

1. If $f(x) = \ln(\ln x) - (\ln x)^2$, what is $f'(x)$?

2. If $g(y) = (\sin ny)(\sin y)^n$, what is $g'(y)$?

3. If $\xi(x) = \arctan(\cos(x^2+1))$, what is $d\xi/dx$?

4. Let $y = \sin(\ln(\operatorname{arcsec}(2x))) + e\pi$, what is y'?

5. Find the limit of $\left(\frac{1-\cos\theta}{4\theta^2}\right)^{1/2}$ as $\theta \to 0$.

6. $\int \cos^2 4\theta \, d\theta = ?$

7. $\int \tan^2 u \sec^2 u \, du = ?$

8. $\int \frac{d\xi}{\sqrt{9-16\xi^2}} = ?$

9. If $F(t) = -\ln \cos t$ show that $F'(t) = \tan t$.

10. $\int \frac{x^2+x+8}{x^2+4} \, dx = ?$

MATH 152 TEST IIB BE NEAT SHOW ALL WORK
ONE SIDE OF EACH PAGE ONLY

1) If $f(x) = x \ln x - x$, Find $f'(x)$.

2) FIND $\frac{dy}{dx}$ If $y = \sin x + \operatorname{arcsec} 2x + \ln(1-x^2) + \sec 2x + e^{\pi}$.

3) FIND $\frac{dy}{d\xi}$ if $y = (\ln(\frac{1}{\xi}))(\arcsin \xi)$.

4) FIND $f'(x)$ if $f(x) = \sin(\cos(\tan(x^2)))$.

5) If $F(t) = \sin(\omega t + \alpha)$ [where ω & α are constants]
Show $F''(t) + \omega^2 F(t) = 0$.

6) What is $\lim_{t \to 0} \frac{\sin^2 t/2}{\sin t}$?

7) $\int \cos 3u \, du = ?$

8) $\int \sin^3 z \, dz = ?$

9) $\int \frac{2x \, dx}{x^2+1} = ?$

10) $\int \frac{x^2+2}{x^2+1} \, dx = ?$

58 MATH 152 TEST III SHOW ALL WORK BE NEAT
ONE SIDE OF EACH PAGE ONLY

IN 1-3 FIND THE DERIVATIVE

1. $e^{3x} + e^{-x^2} + \ln|x| + e^{\ln x} + \pi^e$

2. $x^{\sqrt{x}}$

3. $\left|\frac{x^2}{(x-1)(x+1)}\right|$

4. $\int e^{5x}\,dx = ?$

5. Find the equation of the tangent line to $y = e^{-x}\sin x$ at $x = \pi$.

6. Show $y(t) = te^{-t}$ satisfies $y'' + 2y' + y = 0$.

7. Find A The Area between $y = \sin x$, $y = 0$ $x = 0$ and $x = \pi/2$.

8. 

Find $\frac{d\theta}{dt}$ when $x = 500$ and given that $\frac{dx}{dt} = 7$.

9. Discuss (i.e. increasing, decreasing rel max's max's concavity, pts of inflection) the graph of $y = e^{-\frac{x^2}{2}}$ sketch it.

10. Find the max value of $f(x) = x^2e^{-x}$ on $[0,\infty)$. Justify your answer.