	<p>MINISTRY OF RESEARCH AND HIGHER EDUCATION</p> <p><b>PHYSICS MAJOR &amp; PHYSICS EDUCATION- FMIPA</b></p> <p>Campus A, Bd. Hasyim Asyari 5th Floor          Jl. Rawamangun Muka No. 1 Jakarta          13220 Campus B UNJ Rawamangun          Jl. Pemuda No. 10 Jakarta          13220 Tel. 021-29266285/29266284  <a href="http://www.unj.ac.id/fmipa/physics">www.unj.ac.id/fmipa/physics</a></p>	<b>MIDDLE EXAMINATION 117</b>	
		<b>Calculus I</b>	
		<b>Date and time</b>	<b>Tuesday , October 25 2022</b>
		<b>O'clock</b>	<b>10.00-11.40 WIB</b>
		<b>Study Program</b>	<b>Physics , Physics Education</b>
		<b>Nature of the Exam</b>	<b>Closed book</b>
		<b>Lecturer</b>	<b>Prof. Dr. Mangasi AM Dr. Teguh B. Prayitno Upik Rahma Fitri, M.Pd</b>

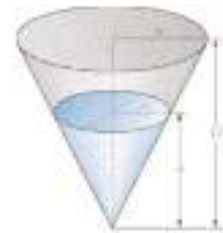
**Choose 3 questions For done**

1. Check it out is function

$$f(x) = |x - 3|$$

Have derivative in  $x = 3$

2. Water is poured into an inverted cone at a constant speed of  $8 \text{ cm}^3/\text{min}$ . If the height of the cone is 12 cm and the radius of the top of the cone is 6 cm, how fast does the radius of the top surface of the water change when the height of the water is 8 cm from the bottom?



3. Search  $dy/dx$  for equality following :

$$x \cos(2x + 3y) = y \sin x$$

4. For sketch curve from function :

$$y = \frac{x^4}{4} - 2x^2 + 4$$

5. Determine with method substitute !

a.  $\int (3x - 5)^2 dx$

b.  $\int \frac{2x}{4x-7} dx$

6. Make it count Riemann sums for  $f(x) = x^2 + 1$  on interval

$[-1,2]$  uses dot, dot, dot the same partition long

$-1 < -0.5 < 0 < 0.5 < 1 < 1.5 < 2$ , with point matching samples  $x_i$  is the midpoint of the  $i$ -th subinterval .

**HAVE A GREAT TIME DOING IT**