

MAT220 Calculus I
Final Exam Review
Jeopardy Solutions

Limits	100	6, 3, IWOB
	200	2, DNE, 2, 6
	300	0
	400	12, DNE, 6, 11
	500	DNE, 0, -8
Graphs	100	1. B 2. D 3. C
	200	The graph has a sharp point or a vertical tangent at $x=2$
	300	1) -2, 0, 3 2) -1.2, 1.2, 3 3) 0, 2
	400	-1
	500	C,D
Derivatives	100	$\frac{dy}{dx} = 3x^2 + 3^x \ln 3 - \frac{3}{x} + \ln 3$
	200	$y = 7x - 5$
	300	$\frac{dy}{dx} = \frac{3y^2}{2 - 6xy}$
	400	$\frac{dy}{dx} = -\frac{3}{2} (2x - 7)^{-3/2}$
	500	$\frac{dy}{dx} = 3e^{3x} (3x^2 + 1)^4 + 24xe^{3x} (3x^2 + 1)^3$
Integration	100	$-\frac{1}{3x} + C$
	200	$\frac{3^x}{\ln 3} + \frac{1}{3} \ln x + C$
	300	$\arctan x + C, \quad \frac{1}{2} \ln 1 + x^2 + C$
	400	$\frac{1}{6} \ln x^2 + C$
	500	$2e^2 - 2e$
Anything	100	Use $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$
	200	4.685
	300	$-\frac{1}{2} \ln \cos(2x) + C$
	400	$-2 \cos \sqrt{x} + C$
	500	$3 \tan(4x) + C$

