



Quiz # 5
 Math 101-Section 011 Calculus I
 10 November 2016, Thursday
 Instructor: Ali Sinan Sertöz
Solution Key



Bilkent University

Your Name:

Student ID:

Your Department:

Show your work in detail. Correct answers without justification are never graded.

Q-1) Plot the graph of $f(x) = 6x^4 - 8x^3$ using calculus techniques. In particular find critical points, concavity, inflection points, etc. (10 points)

Answer: $f(x) = 2x^3(3x - 4) = 0$ when $x = 0$ and $x = 4/3$.

$f'(x) = 24x^2(x - 1) = 0$ when $x = 0$ and $x = 1$.

$f''(x) = x(72x - 48) = 0$ when $x = 0$ and $x = 2/3$.

x	$-\infty$	0	$2/3$	1	$4/3$	∞			
$f(x)$	∞	+	0	-	-	0	+	∞	
$f'(x)$		-	0	-	-	0	+	+	+
$f''(x)$		+	0	-	0	+	+	+	+

And here is the graph:

