Math 201, Section 12
Fall 2016, Term 161
Instructions: Show Your Work!

Quiz 4
Version A

1. (5 pts) Suppose that f is a differentiable function of x and y and
$$g(s,t) = f\left(e^s + \sin t, e^s + \cos t\right).$$
Use the table of values to calculate $g_s(0,0)$ and $g_t(0,0)$.

	f	g	f_x	f_y
$(0,0)$	3	6	4	8
$(1,2)$	6	3	2	5

2. (5 pts) Show that every normal line to the sphere
$$x^2 + y^2 + z^2 = 9$$
passes through the center of the sphere.

Math 201, Section 15
Fall 2016, Term 161
Instructions: Show Your Work!

Quiz 4
Version B

1. (5 pts) Suppose that f is a differentiable function of x and y and
$$g(s, t) = f\left(2s - t, t^2 - 4s\right).$$
Use the table of values to calculate $g_s(1, 2)$ and $g_t(1, 2)$.

	f	g	f_x	f_y
$(0,0)$	3	6	4	8
$(1,2)$	6	3	2	5

2. (5 pts) Show that the sum of the $x-$, $y-$, and $z-$intercepts of any tangent plane to the surface
$$\sqrt{x} + \sqrt{y} + \sqrt{z} = \sqrt{k}$$
is a constant.