

MATH 110-001, QUIZ 1

January 19, 2018

Time: 15 minutes

Show all your work. No calculators, no books/notes are allowed.

Name (please print): _____

Student number: _____

1. A cubic ice is melting and it remains a cube as it melts. If all its edges are shrinking at a rate of 2 cm/sec , how fast is its volume changing when the length of each edge is 10 cm ? (Include the units in your answer.)

2. Consider the curve $e^y = x^2$

a) Assume y is a function of x , find $\frac{dy}{dx} = y'(x)$.

b) Assume x and y are both functions of time, t . First differentiate both sides with respect to t , then find $\frac{\frac{dy}{dt}}{\frac{dx}{dt}} = \frac{y'(t)}{x'(t)}$.

c) (**Bonus**) Now assume x is a function of y , find $\frac{dx}{dy}$.