The University of Jordan
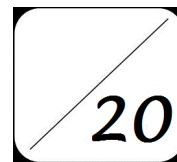### DEPARTMENT OF MATHEMATICS

Calculus I   EXAM 1A / 1st SEMESTER 2016-2017   Date: 05/11/2016

/20

الاسـم : ....   الـرقم الجـامعي: (...................................)   وقـت المحاضرة: (..........................)

Instructions: The test one two-sided page; make sure you do both sides. You **CANNOT** use a calculator on any part of this exam. The point value of each problem is indicated in brackets. Finally, before you start to work a problem, be sure that you understand what is being asked.

For questions 1 to 8, fill in the blank with the correct answer. **Only correct answers count.** [**1.5 pts each**]

1. $\tan\left(\dfrac{7\pi}{6}\right) = $ ....

2. If $1 + \log_2(x-4) = \log_2(x+3)$, then $x = $ ....

3. If $f(x) = \dfrac{\cos^{-1}(1-x)}{x-2}$, then Dom($f$) = ...

4. If $f(x) = \sqrt{25-x^2} + 2$, then Range(f) = ...

5. $\sin^{-1}\sin\left(\dfrac{9\pi}{8}\right) = $ ....

6. $\sin\left(2\tan^{-1}\left(\dfrac{2}{3}\right)\right) = $ ....

7. If $f(x) = \ln x$, then Dom$(f \circ f) = $ ....

8. The function $f(x) = e^{(1+x)} - e^{(1-x)}$ is symmetric about the ....

For question 9, 10, and 11, sufficient work must be shown to receive credit.

9. [3 pts] Sketch the graph of $f(x) = \ln(2-x)$.

10. [3 pts] Let $f(x) = 2(5)^{\sqrt[3]{1-x}} + 3$. Find $f^{-1}(x)$.

11. [2 pts] If $h(x) = \arctan x$ for $x \geq 0$, $g(x) = \cos x$, and $f(x) = (1-x^2)^{-1}$, then $(f \circ g \circ h)(x) = 1 + x^p$. Find the value of the number p.