Sols

MATH 141: QUIZ 2 SECTIONS 2.2, 2.4, 2.5

ANN CLIFTON
UNIVERSITY OF SOUTH CAROLINA

Name: _____

No phone or calculator. You must show all work to receive full credit. Simplify your coefficients when applicable.

1. **(5 points)** Find the following limit:

$$\lim_{h\to 0} \frac{\sqrt{5h+4}-2}{h} \quad h \to 0 \;\checkmark$$

2 $\frac{\sqrt{5h+4}-2}{h} \cdot \frac{\sqrt{5h+4}+2}{\sqrt{5h+4}+2} = \frac{5h+4-4}{h(\sqrt{5h+4}+2)} = \frac{5k}{k\cdot(\sqrt{5h+4}+2)}$ 2

So, $\lim_{h\to 0} \frac{\sqrt{5h+4}-2}{h} = \lim_{h\to 0} \frac{5}{\sqrt{5h+4}+2} = \frac{5}{\sqrt{4}+2} = \boxed{\frac{5}{4}}$

1

Date: January 31, 2018.

2. **(5 points)** At what points is the following function continuous?

$$y = \sqrt{4x + 28}$$

Not necessary

$y = f(g(x))$ where $g(x) = 4x+28$ and $f(x) = \sqrt{x}$

g is a polynomial so continuous on $(-\infty, \infty)$.

$f(x)$ is continuous for all $x \geq 0$.

So, $y = f(g(x))$ is continuous when

$g(x) \geq 0$ or $4x+28 \geq 0$ 3

$4x \geq -28$

$\boxed{x \geq -7}$ 2

or $[-7, \infty)$