Quiz #2

Directions: Carefully read each question below and answer to the best of your ability in the space provided. Your answer to problem # 2 should be written in a clear and concise manner.
You **MUST** show your work to receive full credit!

Calculators are not allowed for the quiz.

1. (1 point) Which of the following is the value of $\sin^{-1}(\sin(3\pi))$?

   A. 3π

   B. π

   C. $-\pi$

   D. 0

   E. None of the above

2. (2 points) Given that $\lim_{x\to 2} f(x) = 3$, $\lim_{x\to 2} g(x) = -2$ and $\lim_{x\to 2} h(x) = 5$, find

$$\lim_{x\to 2} \frac{3f(x) - 2g(x)\cdot h(x)}{f(x)\cdot g(x) + 4h(x)}.$$

Solution:

$$\begin{aligned}
\lim_{x\to 2} \frac{3f(x) - 2g(x)\cdot h(x)}{f(x)\cdot g(x) + 4h(x)} &= \frac{\lim\limits_{x\to 2}\Big(3f(x) - 2g(x)\cdot h(x)\Big)}{\lim\limits_{x\to 2}\Big(f(x)\cdot g(x) + 4h(x)\Big)} \\
&= \frac{\lim\limits_{x\to 2}\Big(3f(x)\Big) - \lim\limits_{x\to 2}\Big(2g(x)\cdot h(x)\Big)}{\lim\limits_{x\to 2}\Big(f(x)\cdot g(x)\Big) + \lim\limits_{x\to 2}\Big(4h(x)\Big)} \\
&= \frac{3\lim\limits_{x\to 2} f(x) - 2\lim\limits_{x\to 2} g(x)\cdot \lim\limits_{x\to 2} h(x)}{\lim\limits_{x\to 2} f(x)\lim\limits_{x\to 2} g(x) + 4\lim\limits_{x\to 2} h(x)} \\
&= \frac{3\cdot 3 - 2\cdot(-2)\cdot 5}{3\cdot(-2) + 4\cdot 5} = \boxed{\frac{29}{14}}
\end{aligned}$$

Name: _____

Question:	1	2	Total
Points:	1	2	3
Score:			