Calculus Web Assignments

Web Assignments are intended to be completed with a partner. Both partners should individually work each of the problems, followed by a collaborative discussion about the problem.

Both partners are required to participate in the "Honor-System" Grading of the Web Assignment.

Calculus: Web Assignment #17

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 1. The statement "Whether or not $\lim_{x \to a} f(x)$ exists, depends on how $f(a)$ is defined." is true

a. sometimes
b. always
c. never

____ 2. If $\lim_{x \to a} f(x) = 0$ and $\lim_{x \to a} g(x) = 0$, then $\lim_{x \to a} \frac{f(x)}{g(x)}$

a. must exist
b. not enough information
c. does not exist

____ 3. $\frac{d}{dx}\left(e^7\right)$ equals

a. 0
b. e^7
c. $7e^6$

____ 4. Gravel is poured into a canonical pile. The rate at which gravel is added to the pile is

a. $\frac{dr}{dt}$
b. $\frac{dV}{dr}$
c. $\frac{dV}{dt}$
d. none of the above

____ 5. We know that $\frac{d}{dx}\left(\sin(x)\right) = \cos(x)$.

True or **False:** $\frac{d}{dx}\left(\sin(2x)\right) = \cos(2x)$

a. True
b. False

____ 6. The area of a circle, $A = \pi r^2$, changes as its radius changes. If the radius changes with respect to time, the change in area with respect to time is

a. $\frac{dA}{dt} = 2\pi r \frac{dr}{dt}$
b. $\frac{dA}{dr} = 2\pi r$
c. $\frac{dA}{dr} = 2\pi r + \frac{dr}{dt}$
d. Not enough information

____ 7. **True** or **False**. $\frac{d}{dx}\ln(\pi) = \frac{1}{\pi}$

a. True
b. False

____ 8. Let f be a continuous function on the interval $[a, b]$.

True or **False**:

$$\lim_{n \to \infty} \sum_{i=1}^{n} f(x^*_i)\Delta x$$

may lead to different limits if we choose the x^* to be the left-endpoints instead of midpoints.

a. True
b. False

____ 9. **True** or **False**. If f is continuous on the interval $[a,b]$, then $\int_a^b f(x)dx$ is a number.

a. True
b. False

____ 10. The slope of the line tangent to the graph of $y = \ln\left(x^2\right)$ at e^2 is

a. $\frac{1}{e^2}$
b. $\frac{2}{e^2}$
c. $\frac{4}{e^2}$
d. $\frac{1}{e^4}$
e. $\frac{4}{e^4}$