

Mathematics Pre-arrival course

Test Your Understanding Quiz 2 – Calculus: Integration and Differentiation

We find that sometimes the typesetting for mathematics on blackboard does not work very well. The first thing to try is to change/update browser, as that sometimes solves the issue completely!

Quiz 1: Differentiation

For each of the following statements, determine if the statement is True or False:

1. If f and g are differentiable, then

$$\frac{d}{dx} [f(x)g(x)] = f'(x)g'(x)$$

2. If f is differentiable, then

$$\frac{d}{dx} \sqrt{f(x)} = \frac{f'(x)}{2\sqrt{f(x)}}$$

3. If $g(x) = x^5$, then

$$\lim_{x \rightarrow 2} \frac{g(x) - g(2)}{x - 2} = 80$$

4. An equation of the tangent line to the parabola $y = x^2$ at $(-2, 4)$ is $y - 4 = 2x(x + 2)$.

Quiz 2: Integration

For each of the following statements, determine if the statement is True or False:

1. All continuous functions have antiderivatives.
2. If f and g are continuous on $[a, b]$, then

$$\int_a^b [f(x)g(x)] dx = \left(\int_a^b f(x) dx \right) \left(\int_a^b g(x) dx \right)$$

3. If f is continuous on $[a, b]$, then

$$\frac{d}{dx} \left(\int_a^b f(x) dx \right) = f(x)$$

4. For a, b and c real constants, we have

$$\int_{-5}^5 (ax^2 + bx + c) dx = 2 \int_0^5 (ax^2 + c) dx$$