Unleashing the toolbox

TOTAL POINTS 5

1. **In this assessment, you will be tested on all of the different topics you have in covered this module. Good luck!** 1 point

What is the derivative of the function $f(x) = x^{3/2} + \pi x^2 + \sqrt{7}$ evaluated at the point $x = 2$?

- $f'(2) = \frac{3}{2} + 4\pi$
- $f'(2) = \frac{3\sqrt{2}}{2} + 4\pi + \sqrt{7}$
- $f'(2) = \frac{3}{2} + 4\pi + \sqrt{7}$
- **(selected)** $f'(2) = \frac{3\sqrt{2}}{2} + 4\pi$

2. **What is the derivative of the function $f(x) = x^3 cos(x) e^x$?** 1 point

- $f'(x) = -3x^2 sin(x) e^x$
- $f'(x) = -e^x x^3 sin(x) + e^x x^3 cos(x) + e^x x^2 cos(x)$
- $f'(x) = -x^3 sin(x) + e^x x^3 + 3e^x x^2 cos(x)$
- **(selected)** $f'(x) = -e^x x^3 sin(x) + e^x x^3 cos(x) + 3e^x x^2 cos(x)$

3. **What is the derivative of the function $f(x) = e^{[(x+1)^2]}$?** 1 point

- **(selected)** $f'(x) = 2(x+1)e^{[(x+1)^2]}$
- $f'(x) = e^{2(x+1)}$
- $f'(x) = (x+1)e^{[(x+1)^2]}$
- $f'(x) = e^{[(x+1)^2]}$

4. **What is the derivative of the function $f(x) = x^2 cos(x^3)$?** 1 point

- **(selected)** $f'(x) = 2x cos(x^3) - 3x^4 sin(x^3)$
- $f'(x) = 2x sin(x^3) - 3x^4 cos(x^3)$
- $f'(x) = 2x cos(x^3) - 3x^4 cos(x^3)$
- $f'(x) = 2x sin(x^3) - 3x^4 sin(x^3)$

5. **What is the derivative of the function $f(x) = \sin(x) e^{\cos(x)}$ at the point $x = \pi$?** 1 point

- $f'(\pi) = -\frac{1}{e}$
- $f'(\pi) = \frac{1}{e^x}$
- **(selected)** $f'(\pi) = \frac{1}{e}$
- $f'(\pi) = -\frac{1}{e^2}$

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