

# Math 2315 - Calculus 2

Quiz #2 - 2017.01.11

Solutions

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Compute the following derivative:  $\frac{d}{dz} \sin(e^{z^2-1} \ln(2z))$

$$\begin{aligned} \frac{d}{dz} \sin(e^{z^2-1} \ln(2z)) &= \cos(e^{z^2-1} \ln(2z)) \frac{d}{dz} (e^{z^2-1} \ln(2z)) \\ &= \cos(e^{z^2-1} \ln(2z)) \left( \left( \frac{d}{dz} e^{z^2-1} \right) \ln(2z) + e^{z^2-1} \left( \frac{d}{dz} \ln(2z) \right) \right) \\ &= \cos(e^{z^2-1} \ln(2z)) \left( 2ze^{z^2-1} \ln(2z) + e^{z^2-1} \frac{2}{2z} \right) \\ &= \cos(e^{z^2-1} \ln(2z)) \left( 2ze^{z^2-1} \ln(2z) + e^{z^2-1} \frac{1}{z} \right) \end{aligned}$$