

# Math 2215 - Calculus 1

Quiz #6 - 2016.09.08

Solutions

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Compute the following derivative:

$$\frac{d}{dw} \frac{(\sqrt{w} + 1)(w^2 - 2w + 4)}{2w - 3}$$

$$\begin{aligned} & \frac{d}{dw} \frac{(\sqrt{w} + 1)(w^2 - 2w + 4)}{2w - 3} \\ &= \frac{\frac{d}{dw} [(\sqrt{w} + 1)(w^2 - 2w + 4)] \cdot (2w - 3) - (\sqrt{w} + 1)(w^2 - 2w + 4) \cdot \frac{d}{dw}(2w - 3)}{(2w - 3)^2} \\ &= \frac{\left[ \frac{d}{dw} [(\sqrt{w} + 1)] (w^2 - 2w + 4) + (\sqrt{w} + 1) \frac{d}{dw} [(w^2 - 2w + 4)] \right] \cdot (2w - 3) - (\sqrt{w} + 1)(w^2 - 2w + 4) \cdot 2}{(2w - 3)^2} \\ &= \frac{\left[ \frac{1}{2\sqrt{w}}(w^2 - 2w + 4) + (\sqrt{w} + 1)(2w - 2) \right] \cdot (2w - 3) - (\sqrt{w} + 1)(w^2 - 2w + 4) \cdot 2}{(2w - 3)^2} \end{aligned}$$