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Quiz 10

Problem 1

Find the derivatives of:

$$f(x) = \sqrt{x}(x-1)$$

$$f(x) = x$$

$$f(x) = x^2$$

$$f(x) = \frac{1}{x^2}$$

$$f(x) = \sqrt[3]{x^2}$$

Solution to the Problem 1

$$f'(x) = (\sqrt{x}x - \sqrt{x})' = (x^{3/2} - x^{1/2})' = \frac{3}{2}x^{1/2} - \frac{1}{2}x^{-1/2}$$

$$f'(x) = 1$$

$$f'(x) = 2x$$

$$f'(x) = (x^{-2})' = -2x^{-3}$$

$$f'(x) = (x^{2/3})' = \frac{2}{3}x^{-1/3}$$

Grading

2 points for each derivative. If a meaningful calculation was shown, just some numerical mistake in it (thus a wrong answer), a partial credit of 1 was given. So it's 10 points in total.