

Problem 18, Section 2.5

Find  $f'(4)$  and  $f'(16)$  where  $f(x) = 4x^{\frac{5}{4}} + 2x^{\frac{3}{2}} + x$ .

Well,  $f'(x) = 4(\frac{5}{4})x^{\frac{5}{4}-1} + 2(\frac{3}{2})x^{\frac{3}{2}-1} + 1 = 5x^{\frac{1}{4}} + 3x^{\frac{1}{2}} + 1$ . So,  $f'(4) = 5\sqrt{2} + 7$  and  $f'(16) = 23$ .