

# Math 2143 - Brief Calculus with Applications

Quiz #10 - 2008.04.23

Solutions

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1. Find the antiderivative  $F(x)$  of the function  $f(x) = 4x^3 - 3x + 6$ .

$$F(x) = x^4 - \frac{3}{2}x^2 + 6x + C$$

2. Find the antiderivative  $F(x)$  of the function  $f(x) = \frac{1}{\sqrt{x}} + 4$ , where  $F(4) = 3$ .

$$F(x) = 2\sqrt{x} + 4x + C$$

Using  $F(4) = 3$ , we end up with the expression  $3 = 4 + 16 + C$ . Solving for  $C$  gives  $C = -17$ . Therefore,

$$F(x) = 2\sqrt{x} + 4x - 17.$$