Math 241 Fall 2018 Professor MG
Classwork 8 Name: _____

Show all work and circle/box your final answer. All answers must be simplified unless stated otherwise.

1. (*0 points*) Suppose that f and h are integrable and that

$$\int_1^9 f(x)\,dx = -1,\ \int_7^9 f(x)\,dx = 5,\ \int_7^9 h(x)\,dx = 4$$

Find

(a) $\int_9^7 [h(x) - f(x)]\,dx$

(b) $\int_7^9 [2f(x) - 3h(x)]\,dx$

(c) $\int_1^7 f(x)\,dx$

2. (*0 points*) Evaluate the following integrals:

(a) $\displaystyle\int \frac{1+2t^3}{4t^2}\,dt$

(b) $\displaystyle\int \left(4x^7 - 2x^2 + \frac{12}{x^4}\right)\,dx$

(c) $\displaystyle\int_{-2}^{2} (x^3 - 2x + 3)\,dx$

(d) $\displaystyle\int_{1/2}^{3/2} (-2x + 4)\,dx$ (Use area)

(e) $\displaystyle\int \frac{x^2+1}{(x^3+3x)^2}\,dx$

(f) $\displaystyle\int \frac{9r^2\,dr}{\sqrt{1-r^3}}$

3. (*0 points*) Find $\dfrac{d}{dx}\displaystyle\int_1^{\sin x} 3t^2\ dt$ by

(a) By evaluating the integral and differentiating the result

(b) By differentiating the integral directly.