WebAssign
Math 125 HW_1A (4.9) (Homework)

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Math 125, section B, Spring 2019
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Current Score : – / 60 **Due :** Wednesday, April 10, 2019 11:00 PM PDT **Last Saved : n/a Saving... ()**

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1. –/5 pointsSCalcET8 4.9.503.XP.

Find the most general antiderivative of the function. (Check your answer by differentiation. Use C for the constant of the antiderivative.)

$$f(x) = \frac{5}{6} + \frac{2}{3}x^2 - \frac{6}{7}x^3$$

$F(x) =$

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2. –/5 pointsSCalcET8 4.9.015.

Find the most general antiderivative of the function. (Check your answer by differentiation. Use C for the constant of the antiderivative.)

$$g(t) = \frac{7 + t + t^2}{\sqrt{t}}$$

$G(t) =$

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3. –/5 pointsSCalcET8 4.9.508.XP.

Find the most general antiderivative of the function. (Check your answer by differentiation. Use C for the constant of the antiderivative.)

$$f(x) = 8\sqrt{x} + 7\cos(x)$$

$F(x) =$

4. –/5 pointsSCalcET8 4.9.515.XP.

Find f.

$$f''(x) = 6 + \cos(x), \quad f(0) = -1, \quad f(5\pi/2) = 0$$

$f(x) =$

5. –/5 pointsSCalcET8 4.9.516.XP.

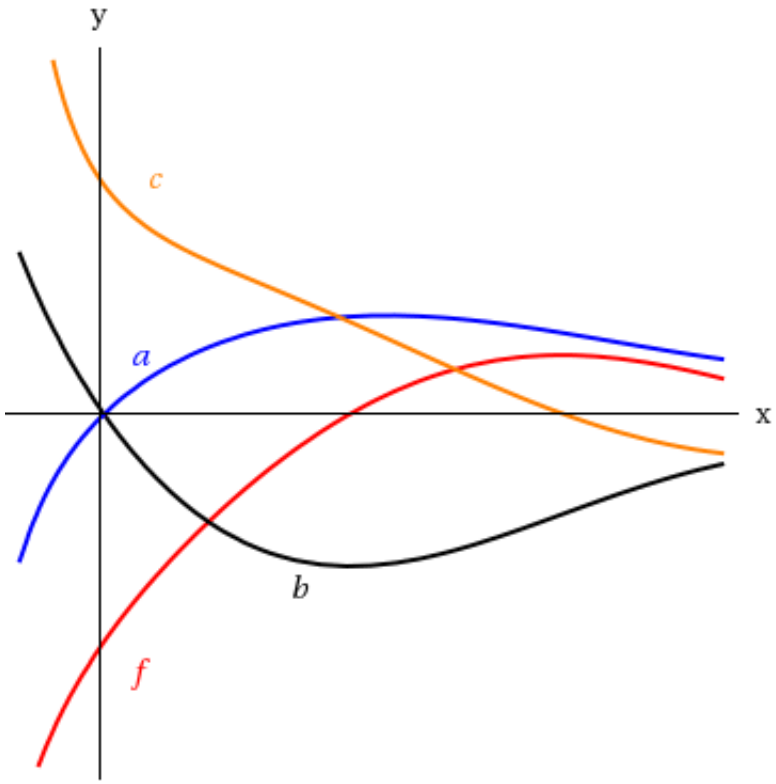
Find f.

$$f''(t) = 5e^t + 8\sin(t), \quad f(0) = 0, \quad f(\pi) = 0$$

$f(t) =$

6. –/3 pointsSCalcET8 4.9.052.

The graph of a function *f* is shown. Which graph is an antiderivative of *f*?



- *a*
- *b*
- *c*

7. –/5 pointsSCalcET8 4.9.064.

A particle is moving with the given data. Find the position of the particle.

$$a(t) = t^2 - 5t + 4, \quad s(0) = 0, \quad s(1) = 20$$

$s(t) =$

8. –/10 pointsSCalcET8 4.9.065.

A stone is dropped from the upper observation deck of a tower, 100 m above the ground. (Assume $g = 9.8$ m/s^2.)

(a) Find the distance (in meters) of the stone above ground level at time t.

$h(t) =$

(b) How long does it take the stone to reach the ground? (Round your answer to two decimal places.)

s

(c) With what velocity does it strike the ground? (Round your answer to one decimal place.)

m/s

(d) If the stone is thrown downward with a speed of 4 m/s, how long does it take to reach the ground? (Round your answer to two decimal places.)

s

9. –/5 pointsSCalcET8 4.9.075.

What constant acceleration is required to increase the speed of a car from 20 mi/h to 57 mi/h in 5 seconds? (Round your answer to two decimal places.)

ft/s^2

10.–/12 pointsSCalcET8 4.9.079.

A high-speed bullet train accelerates and decelerates at the rate of 4 ft/s^2. Its maximum cruising speed is 60 mi/h. (Round your answers to three decimal places.)

(a) What is the maximum distance the train can travel if it accelerates from rest until it reaches its cruising speed and then runs at that speed for 15 minutes?

[ ] mi

(b) Suppose that the train starts from rest and must come to a complete stop in 15 minutes. What is the maximum distance it can travel under these conditions?

[ ] mi

(c) Find the minimum time that the train takes to travel between two consecutive stations that are 30 miles apart.

[ ] min

(d) The trip from one station to the next takes at minimum 37.5 minutes. How far apart are the stations?

[ ] mi