

1 Find the most general antiderivative of the function:

$$f(x) = 5\cos x - 6\sin x$$

- a.  $F(x) = 5 \sin(x) - 6 \cos(x) + C$
- b.  $F(x) = 5 \sin(x) + 6 \cos(x) + C$
- c.  $F(x) = - 5 \sin(x) + 6 \cos(x) + C$

2 Find  $f$ :

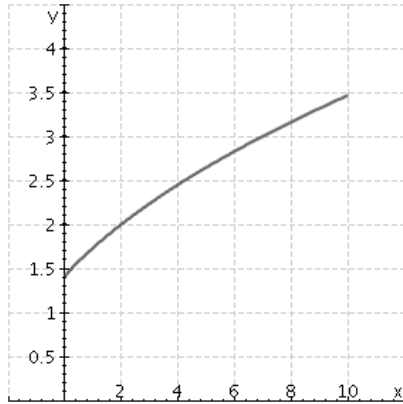
$$f''(x) = 18x + 36x^2$$

- a.  $f(x) = 9x^3 + 6x^4 + Cx + D$
- b.  $f(x) = 3x^3 + 3x^4 + Cx + D$
- c.  $f(x) = 6x^3 + 12x^4 + Cx + D$

3 A stone is dropped from the upper observation deck (the Space Deck) of a tower, 350m above the ground. Find the distance of the stone above ground level at time  $t$ .

- a.  $s(t) = 350 - 9.8t^2$
- b.  $s(t) = 350 + 4.9t^2$
- c.  $s(t) = 350 + 9.8t^2$
- d.  $s(t) = 350 - 4.9t^2$

4 By reading values from the given graph of  $f$ , use five rectangles to find a lower estimate for the area from  $x = 0$  to  $x = 10$  under the given graph of  $f$ . Round your answer to the nearest tenth.



- a. 25.8
- b. 24.4
- c. 28.5
- d. 27.8
- e. 23.7

5 Determine a region whose area is equal to  $\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{\pi}{5n} \tan \frac{i\pi}{5n}$ .

- a.  $y = \tan x, 0 \leq x \leq \frac{\pi}{10}$
- b.  $y = \tan x, 0 \leq x \leq \frac{\pi}{4}$
- c.  $y = \tan x, 0 \leq x \leq \frac{\pi}{8}$
- d.  $y = \tan x, 0 \leq x \leq \frac{\pi}{6}$
- e.  $y = \tan x, 0 \leq x \leq \frac{\pi}{11}$
- f.  $y = \tan x, 0 \leq x \leq \frac{\pi}{5}$

**ANSWER KEY**

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

(copy A)

1. b  
2. b

3. d  
4. e

5. f

1 Find the most general antiderivative of the function:

$$f(x) = 4\cos x - 4\sin x$$

- a.  $F(x) = 4 \sin(x) - 4 \cos(x) + C$
- b.  $F(x) = 4 \sin(x) + 4 \cos(x) + C$
- c.  $F(x) = -4 \sin(x) + 4 \cos(x) + C$

2 Find  $f$ :

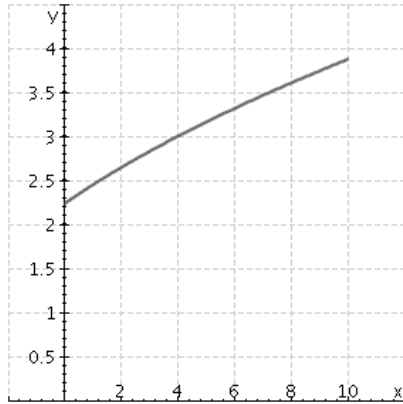
$$f''(x) = 18x + 24x^2$$

- a.  $f(x) = 6x^3 + 8x^4 + Cx + D$
- b.  $f(x) = 9x^3 + 4x^4 + Cx + D$
- c.  $f(x) = 3x^3 + 2x^4 + Cx + D$

3 A stone is dropped from the upper observation deck (the Space Deck) of a tower, 380m above the ground. Find the distance of the stone above ground level at time  $t$ .

- a.  $s(t) = 380 + 4.9t^2$
- b.  $s(t) = 380 - 9.8t^2$
- c.  $s(t) = 380 - 4.9t^2$
- d.  $s(t) = 380 + 9.8t^2$

4 By reading values from the given graph of  $f$ , use five rectangles to find a lower estimate for the area from  $x = 0$  to  $x = 10$  under the given graph of  $f$ . Round your answer to the nearest tenth.



- a. 32.9
- b. 31.2
- c. 33.6
- d. 29.6
- e. 30.3

5 Determine a region whose area is equal to  $\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{\pi}{5n} \tan \frac{i\pi}{5n}$ .

- a.  $y = \tan x, 0 \leq x \leq \frac{\pi}{14}$
- b.  $y = \tan x, 0 \leq x \leq \frac{\pi}{4}$
- c.  $y = \tan x, 0 \leq x \leq \frac{\pi}{15}$
- d.  $y = \tan x, 0 \leq x \leq \frac{\pi}{2}$
- e.  $y = \tan x, 0 \leq x \leq \frac{\pi}{9}$
- f.  $y = \tan x, 0 \leq x \leq \frac{\pi}{5}$

**ANSWER KEY**

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

(copy B)

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1. b  
2. c

3. c  
4. d

5. f