**Test #3 Quick Quizzes**

**The Quick quizzes are mostly concept quizzes. Doing only the Quick quizzes will not be enough to learn the material and pass the test. The quizzes are no calculator. The Quick quizzes are self-assessment quizzes, and they will not be collected or graded. The answer for all quizzes are at the end of each quiz.** Copyright © 2011 Pearson Education, Inc. All rights reserved

**Section 4.8 Quick Quiz**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.** | If *F* '( *x*) = *f* ( *x*) , then in general(a) *F* is the derivative of *f*. | (b) *F* is an antiderivative of *f*. | (c) *f* is an antiderivative of *FJ* |
| **2.****3.** | The antiderivatives of 2*x* + 1 are(a) *x*2 + *x* + *C*.An antiderivative of 5*x*4 + 2*x* - 1 is(a) *x*5 + *x*2 - *x* + 501. | (b) *x* + 2 + *C*. (b) *x*5 + *x*2. | (c) 2*x*2 + *C*. (c) 20*x*3 + 2. |

**4.** Which of *f*(*x*) = 3*x*2 + *x* - 10, *g*(*x*) = 3*x*2 - 10*x*, and *h*(*x*) = 3*x*2 + *x* are antiderivatives of the same function' (a) *f* and *g* (b) *g* and *h* (c) *f* and *h*

**5.** An antiderivative of cos 2*x* is

(a) -2sin 2*x*. (b) - (sin 2*x*)/2. (c) (sin 2*x*)/2.

**6.** The value of

(a) 1 *x*3 + 2 cos *x* + *C*. (b) 1 *x*3 - 2 cos *x* + *C*. (c) 2*x* + 2 cos *x* + *C*.

3 3

**7.** The function *f* that satisfies

*f* '( *x*) = 3*x*2 + 2 sin *x*

with

*f* (0) = 10 is

(a) *f* (*x*) = *x*3 - 2 sin *x* + 10. (b) *f* (*x*) = *x*3 - 2 cos *x*. (c) *f*(*x*) = *x*3 - 2 cos *x* + 12.

**8.** The function *f* that satisfies

*f* ''(*t*) = 6*t* with

*f* '(0) = 1 and

*f* (0) = 2 is

(a) *f*(*t*) = 3*t*3 + 2. (b) *f*(*t*) = *t*3 + 2*t* + 1. (c) *f*(*t*) = *t*3 + *t* + 2.

**9.** If the acceleration of an object with an initial velocity *v*0 is given by *a*(*t*) = 10 cos *t*, then its velocity is

(a) 10 sin *t* + *v*0. (b) 10 cos *t* + *v*0. (c) 10 *v*0 sin *t*.

**10.** If

*f* '( *x*) = *g* '( *x*) , then

(a) *f* and *g* are equal. (b) *f* and *g* differ by a constant. (c) *f* is a constant multiple of *g*.

**Quick Quiz 4.8 Answers:**

**1**b **2**a **3**a **4**c **5**c **6**b **7**c **8**c **9**a **10b**

**Section 5.1 Quick Quiz**

**1.** If an object travels with a velocity of 10 m/s for 0 < *t* < 3 seconds and 15 m/s for 3 < *t* < 5 seconds, the displacement of the object is

(a) 50 meters.

(b) the area of two rectangles, one with base of length 3 seconds and height 10 m/s and one with base of length 2 seconds and height 15 m/s

(c) the area of two rectangles, one with base of length 2 seconds and height 10 m/s and one with base of length 3 seconds and height 15 m/s.

**2.** When the interval [3, 11] is divided into 16 subintervals of equal length, each of the subintervals has length

(a) 2. (b) 4. (c) 1/2 .

**3.** When the region bounded by the graph of

*f* ( *x*) = 3 - 2 *x* and the *x*-axis on the interval [0, 4] is

approximated by left Riemann sums, the approximations

(a) underestimate. (b) overestimate. (c) equal the actual area of the region.

**4.** When the region bounded by the graph of

*f* ( *x*) = 3 + *x*2 and the *x*-axis on the interval [1, 6] is

approximated by right Riemann sums, the approximations

(a) underestimate. (b) overestimate. (c) equal the actual area of the region.

**5.** Suppose the interval [1, 5] is subdivided into *n* = 4 subintervals of equal length. The left Riemann sum uses the grid points

(a) {1, 2, 3, 4}. (b) {2, 3, 4, 5}. (c) {1, 2, 3, 4, 5}.

**6.** Suppose the interval [1, 3] is subdivided into *n* = 4 subintervals of equal length. The right Riemann sum uses the grid points

(a) {1, 1.5, 2, 2.5}. (b) {1.5, 2, 2.5, 3}. (c) {1, 1.5, 2, 2.5, 3}.

**7.** Suppose the interval [2, 8] is subdivided into *n* = 3 subintervals of equal length. The midpoint Riemann sum uses the grid points

(a) {2, 4, 6}. (b) {4, 6, 8}. (c) {3, 5, 7}.

**8.** If the interval [4, 8] is divided into *n* = 4 subintervals of equal length, the grid points including endpoints are

(a) *xk* = 4 + *k* for *k* = 1, 2, 3, 4. (b) *xk* = 4 + *k* for *k* = 0, 1, 2, 3, 4. (c) *xk* = 4 + *k* for *k* = 0, 1, 2, 3.

**9.** The sum (22 + 32 + 42 )·1 is a

(a) left Riemann sum for

(b) right Riemann sum for

*f* ( *x*) = *x*2 on [1, 4] with *n* = 3.

*f* ( *x*) = *x*2 on [1, 4] with *n* = 3.

(c) midpoint Riemann sum for

*f* ( *x*) = *x*2 on [1, 4] with *n* = 3.

**Quick Quiz 5.l Answers**

**1**b **2**c **3**b **4**b **5**a **6**b **7**c **8**b **9**b

**Section 5.2 Quick Quiz**

**1.** Let *R* be the region bounded by the graph of *f* and the *x*-axis on the interval [*a, b*]. If *f* is positive on the interval [*a, b*], then

(a) the net area of *R* equals the area of *R*. (b) the net area of *R* is less than the area of *R*. (c) the net area of *R* is greater than the area of *R*.

**2.** Let *R* be the region bounded by the graph of *f* and the *x*-axis on the interval [*a, b*]. Which of the following statements is true?

(a) The net area of *R* equals the area of *R*. (b) The net area of *R* cannot exceed the area of *R*. (c) The net area of *R* must exceed the area of *R*.

**3.** The definite integral

(a) gives the area of the region bounded by the graph of *f* and the *x*-axis on the interval [*a, b*].

(b) gives the net area of the region bounded by the graph of *f* and the *x*-axis on the interval [*a, b*]. (c) must be positive.

**4**. If and, then equals

(a) 1. (b) 5. (c) -1.

 **5.** If and, then equals

(a) 0. (b) 12. (c) 9.

6. If , then

(a) equals 3. (b) equals -3. (c) cannot be determined.

**7.** The sum (1/3)( *f* (0) + *f* (1) + *f* (2)) is a left Riemann sum for

1. (b) (c)

**8.**

1. (b) (c)

**Quick Quiz 5.2 Answers**

**l**a **2**b **3**b **4**a **5**b **6**c **7**a **8c**

**Section 5.3 Quick Quiz**

**1.** If *A* is an area function for *f* and *F* is any antiderivative of *f*, then

(a)

*f* '= *A*.

(b)

*A*'= *f* .

(c)

*A* = *F* .

**2.** If *A* is an area function for *f* and *F* is any antiderivative of *f*, then

(a) *F = A + C,* where *C* is an arbitrary constant. (b) *f* = *F + C*, where *C* is an arbitrary constant. (c) *f* '= *F* .

**3.** The value of

(a) 0. (b) 1. (c) 2.

**4.** The value of

(a) 0. (b) *x*2. (c) *t*2.

**5.** The value of

(a) 0. (b) *x*2. (c) *t*2.

**6.** Consider the following three integrals:

 *1*1 = *1*2 = *1*3 =

 (a) *1*1 = *1*2. (b) *1*1 = *1*3. (c) *1*2 = *1*3.

**7.** The function for *x* > 0 is

(a) constant. (b) decreasing. (c) increasing.

**8.** The function

 (a) satisfies *g*(0) = 1. (b) has a local maximum at *x* = π. (c) satisfies *g*(π) = 0.

**9.** The value of is

 (a) *h*'( *y* ) - *h*'(1).

(b) *h*(*y*). (c) *h*(*y*) - *h*(1).

**10.** Which is true of , if *a* < *b* ?

(a) It is an area of a region so it is nonnegative.

(b) It may be positive or negative because it is a net area of a region.

(c) It is less than

**Quick Quiz 5.3 Answers**

**1**b **2**a **3**c **4**a **5**b **6**a **7**c **8**b **9**c **10**a

**Section 5.4 Quick Quiz**

**1.** The function

*f* ( *x*) = *x*3 + 3*x* + *x*-1

(a) is odd. (b) is even. (c) has no symmetry.

**2.** The function

*f* ( *x*) = sin2 *x*

(a) is odd. (b) is even. (c) has no symmetry.

**3.** The value of  is

 (a) 2 (b) 0 (c) 1

**4.** The product of an even function and an odd function is

(a) even. (b) odd. (c) has no symmetry.

**5.** The sum of an even function and an odd function is

(a) even. (b) odd. (c) has no symmetry.

**6.** Without integrating, the average value of

*f* ( *x*) = 3*x* - 2 *x*3 on the interval [-10, 10] is

(a) 1. (b) 2. (c) 0.

**7.** Let *A* be the average value of

Without integrating

*f* ( *x*) = *x*2 on [0, 1] and let *B* be the average value of *g* ( *x*) = *x*3 on [0, 1].

(a) *A* > *B*. (b) *A* < *B*. (c) *A = B*.

**Quick Quiz 5.4 Answers**

**l**a **2**b **3**a **4**b **5**c **6**c **7**a

**Section 5.5 Quick Quiz**

**1.** The substitution rule is found by reversing the

(a) Product Rule. (b) Quotient Rule. (c) Chain Rule.

**2.** The best substitution for the integral is

(a) *u* = *x*2 + 10. (b) *u* = *x dx*. (c) *u* = *x*2.

**3.** The best substitution for the integral is

(a) *u* = cos *x*. (b) *u* = sin *x*. (c) *u* = sin10 *x*.

**4.** If the substitution *u* = tan *x* is made then

(a) *du* = sec *x dx*. (b) *du* = sec2 *x*. (c) *du* = sec2 *x dx.*

**5.** If the substitution *u* = *x*8 + *x* + 1 is made then

(a) *du* = 8*x dx*. (b) *du* = (8*x*7 + 1)*dx*. (c) *du* = *x*8 *dx.*

**6.** If the substitution u = x2 - 4 is used on the definite integral, then the new limits of integration are

(a) *u* = 0 and *u* = -4. (b) *u* = -4 and *u* = 32. (c) *u* = -4 and *u* = 6.

**7.** If the substitution *u* = 3*x* is used on the definite integral, the new limits of integration are

(a) *u* = - π and *u* = π/2 (b) *u* = - π/2 and *u* = π/2. (c) *u* = - π and *u* = π .

**8.** equals

(a) (*f* ( *x*))4 + *C*.

(b) (*f* ( *x*))3 + *C*.

(c) (*f* '( *x*))4 + *C*.

**9.** To integrate, you should replace the integrand by

 (a) (1 + cos 5*x*)/2. (b) (1 - sin 5*x*)/2. (c) (1 + cos 10*x*)/2.

**10.** Evaluating the integral results in

1. 4 (b) (c)

**Quick Quiz 5.5 Answers**

**l**c **2**a **3**b **4**c **5**b **6**b **7**a **8**a **9**e **10c**