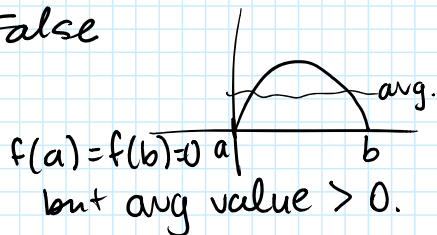
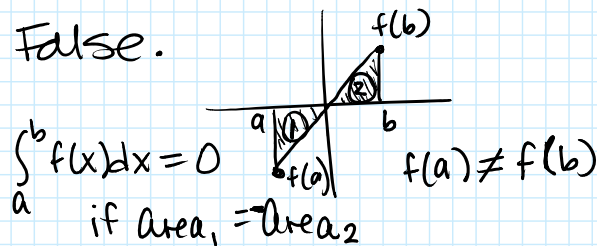


(45) False



(46) False.



(47) **A** (No multiplication rule)

(48) **D** (don't know what's happening in interval  $[-5, -8]$ )

(49) Calculator  
 $av(\cos x) = \frac{1}{5-1} \int_1^5 \cos x dx = -.450$  **B**

(50)  $\frac{1}{b-a} \int_a^b f(x) dx = 10$

$\int_a^b f(x) dx = 10(b-a)$  **C**

(1) if  $\int_a^b f(x) dx = a + 2b$

then  $\int_a^b (f(x) + 3) dx = \int_a^b f(x) dx + \int_a^b 3 dx$   
 $= a + 2b + 3b - 3a$

$= -2a + 5b$  **D**

(2)  $\frac{1}{20} \left( \sqrt{\frac{1}{20}} + \sqrt{\frac{2}{20}} + \sqrt{\frac{3}{20}} + \dots + \sqrt{\frac{20}{20}} \right)$

**B** (with  $n=20$  subintervals)

(3)  $\int_2^k x^2 dx = 0$



$k=2$  only

**C**

(4)  $f''(x) = 6x + 12$

(a) find  $f(x)$  if  $f'$  is tangent to

$$4x - y = 5 \text{ at } (0, -5)$$

$$y = 4x - 5 \quad m = 4 = \text{derivative at } x = 0$$

antideriv:

$$f'(x) = 3x^2 + 12x + C$$

$$f'(0) = 3(0)^2 + 12(0) + C = 4$$

$$C = 4$$

antideriv:

$$f'(x) = 3x^2 + 12x + 4$$

$$f(x) = x^3 + 6x^2 + 4x + k$$

$$f(0) = 0^3 + 6(0)^2 + 4(0) + k = -5$$

$$k = -5$$

function is  $f(x) = x^3 + 6x^2 + 4x - 5$

$$\textcircled{b} \quad \text{av}(f) = \frac{1}{1 - (-1)} \int_{-1}^1 (x^3 + 6x^2 + 4x - 5) dx$$

$$= \frac{1}{2} \left( \frac{1}{4}x^4 + 2x^3 + 2x^2 - 5x \right) \Big|_{-1}^1 = \boxed{-3}$$