

AP Calculus AB Chapter 5 Test 2 – Review 2

*Review definition of continuity

*Review how to use the trapezoid rule using a table of values.

1. a) If $\int_0^a \sin(3x) dx = c$, then $\int_{-a}^a \sin(3x) dx = ?$ b) If $\int_0^a 2x^3 dx = c$, then $\int_{-a}^a 2x^3 dx = ?$

Evaluate each:

2. $\int (3x^4 - 2x^2 + x + 5) dx$ 3. $\int (\sqrt{x} + \frac{1}{x^3}) dx$ 4. $\int (1 - \frac{1}{\sqrt[3]{x^4}}) dx$ 5. $\int (x^3 - 2 \cos x) dx$

6. $\int_1^2 \frac{x^2-4}{\sqrt{x}} dx$

7. $\int_{-1}^2 (4x^3 + x - 1) dx$

8. $\int_{-\pi}^{\pi} \cos x dx$

Use u-substitution to solve.

9. $\int x(x+4)^{11} dx$

10. $\int x\sqrt{x+3} dx$

11. $\int (x-5)^{\frac{2}{5}} dx$

12. $\int \sin 3x dx$

13. If $\int_{-1}^k (3x+1) dx = 15$, find k.

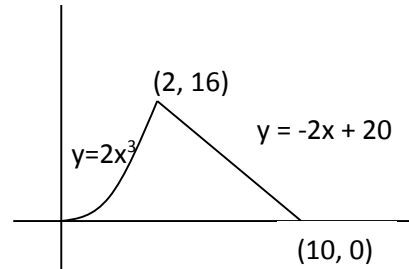
Find $\frac{dy}{dx}$

14. $y = \int_1^{5x} \frac{1}{t^7} dt$

15. $y = \int_{x^2}^{-1} \cos t dt$

16. $\int_{-2}^{x^3} \sqrt{t^3 + 5} dt$

17. Find the area under the 2-curves shown



18. $y = 3x - xy$

a) Find $\frac{dy}{dx}$

b) Find $\frac{d^2y}{dx^2}$

19. The graph of the velocity of a particle is given by:

a) When will it have the maximum speed?

b) When is the acceleration positive?

c) What is the total distance traveled?

d) Where is the particle when $t = 8$?

