

New Concepts

A. Trap. Rule

$$A_T = \frac{h}{2} (y_0 + 2y_1 + 2y_2 + \dots + 2y_{n-1} + y_n)$$

B. Integral Rules

- memorize

C. Slope Fields 6.1 Day 2

- how to draw
- match an eq. w/ field
- find a particular solution

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D. Diff. Eqs. / Init. Val Problems

1. Separate the variables
2. Anti-deriv of both sides
3. Substitute to find C
4. Plug in C, solve for y

E. U Substitution

- identify an inside func.
- indefinite integral: plus C!
- definite: change bounds!

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Old Concepts

A. Average Rate of Change

$$\frac{f(b) - f(a)}{b - a}$$

B. Average Value

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

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C. MVT

Deriv:

$$\frac{f(b) - f(a)}{b - a} = f'(c)$$

Integrals

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

E. Fund Thm of Calc:

$$\text{If } y = \int_c^x f(t) dt \text{ then } \frac{dy}{dx} = f(x)$$

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F. Area under curve

Approx: LRAM
MRAM
RRAM
Trap. Rule

Exact:
Integral

Total area: use absolute value
of the negative area.

G. Related Rates

4.6

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