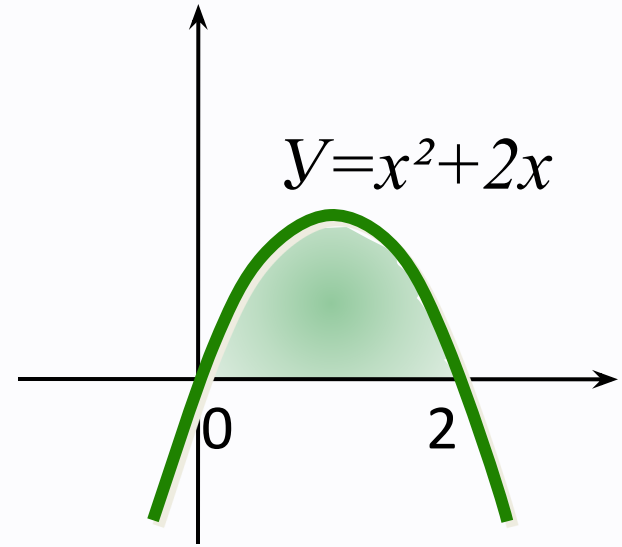
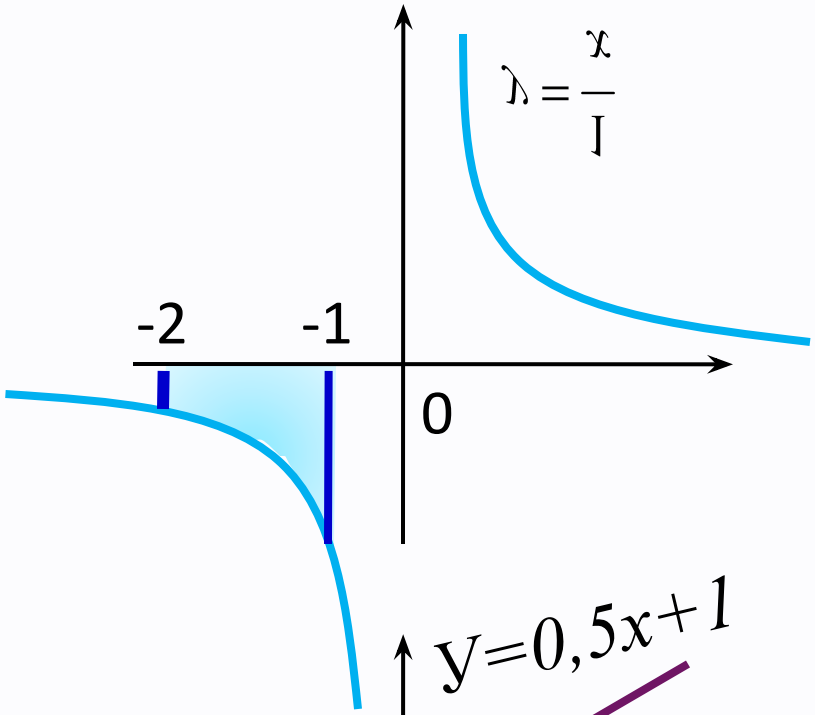
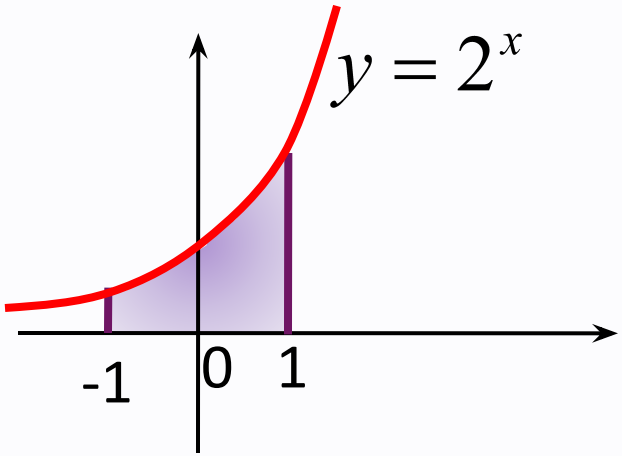
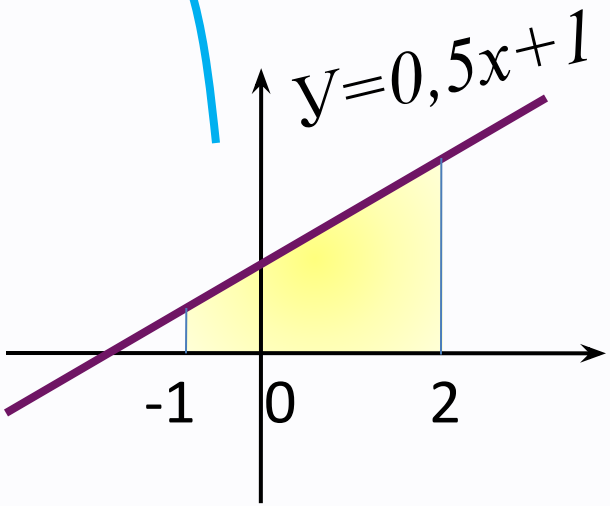
Площадь криволинейной трапеции

Различные виды криволинейных трапеций

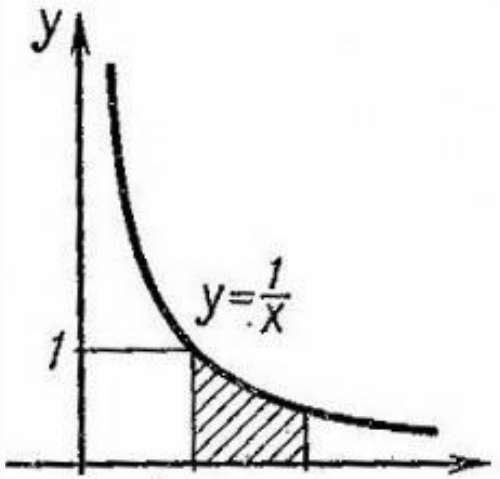


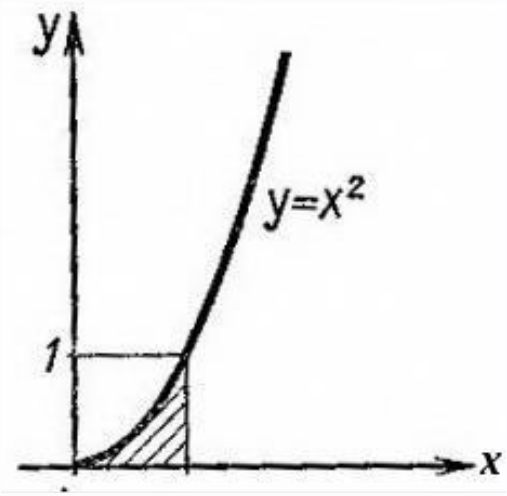


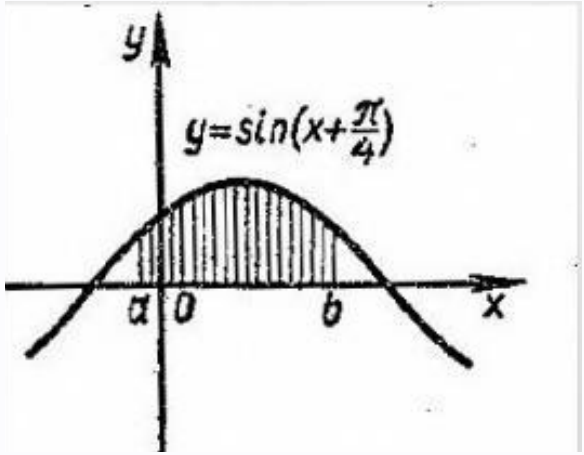


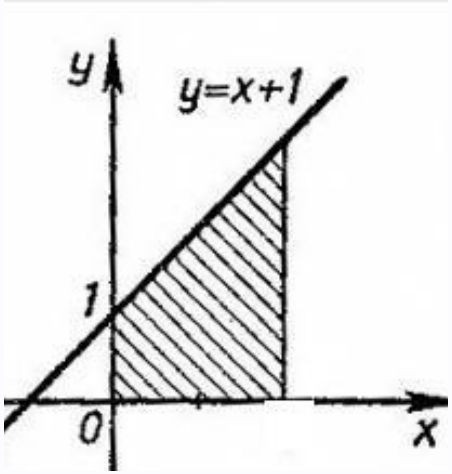


Различные виды криволинейных трапеций



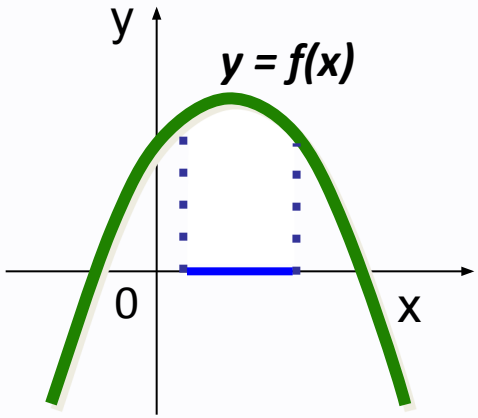




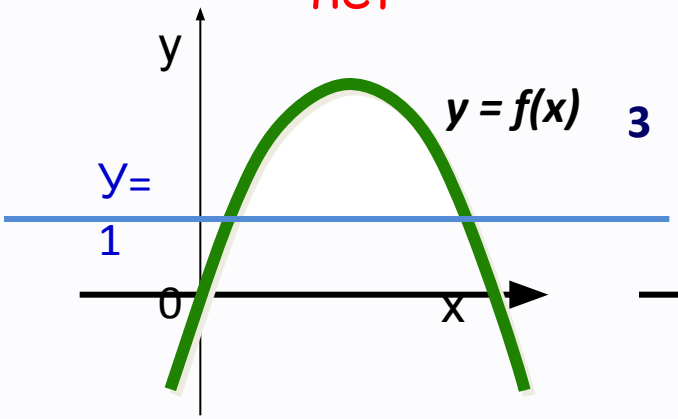


Являются ли криволинейными трапециями фигуры?

да



нет



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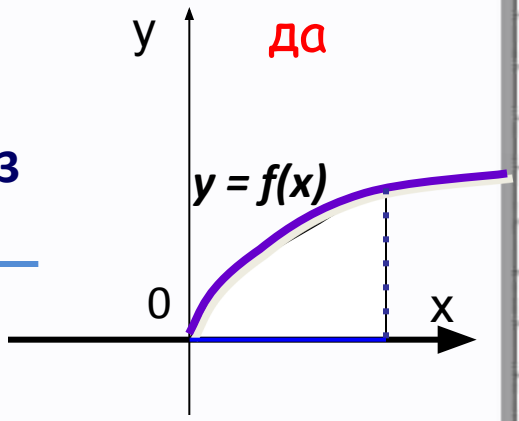

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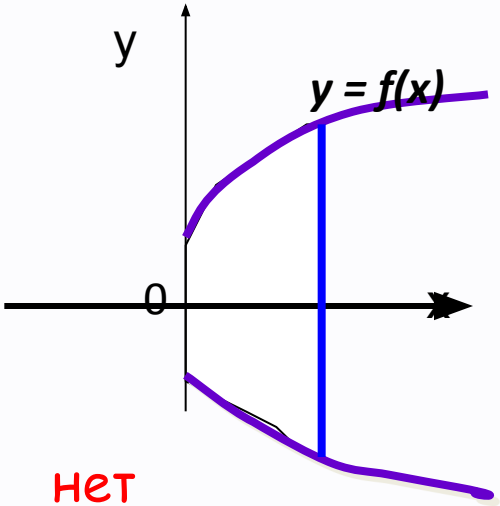

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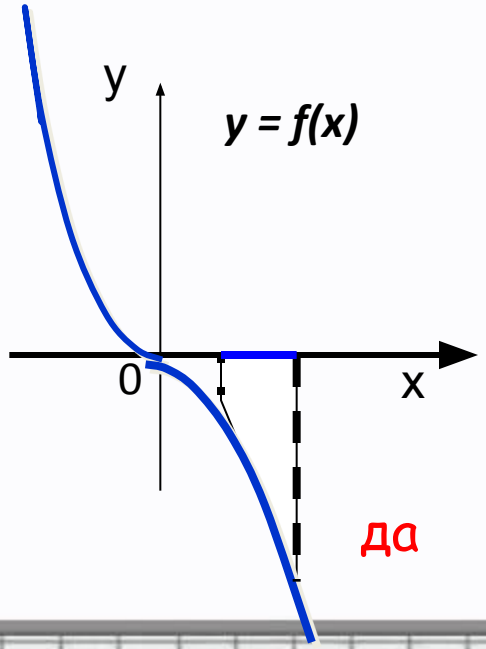

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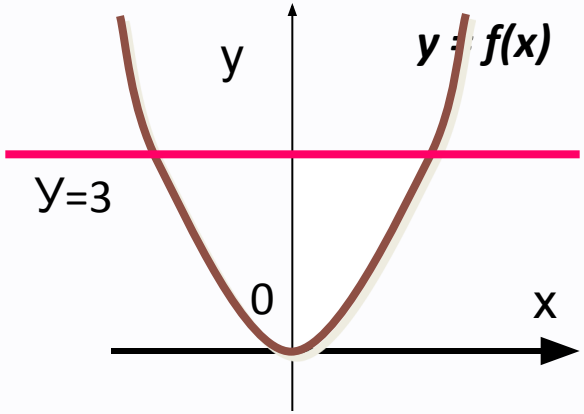
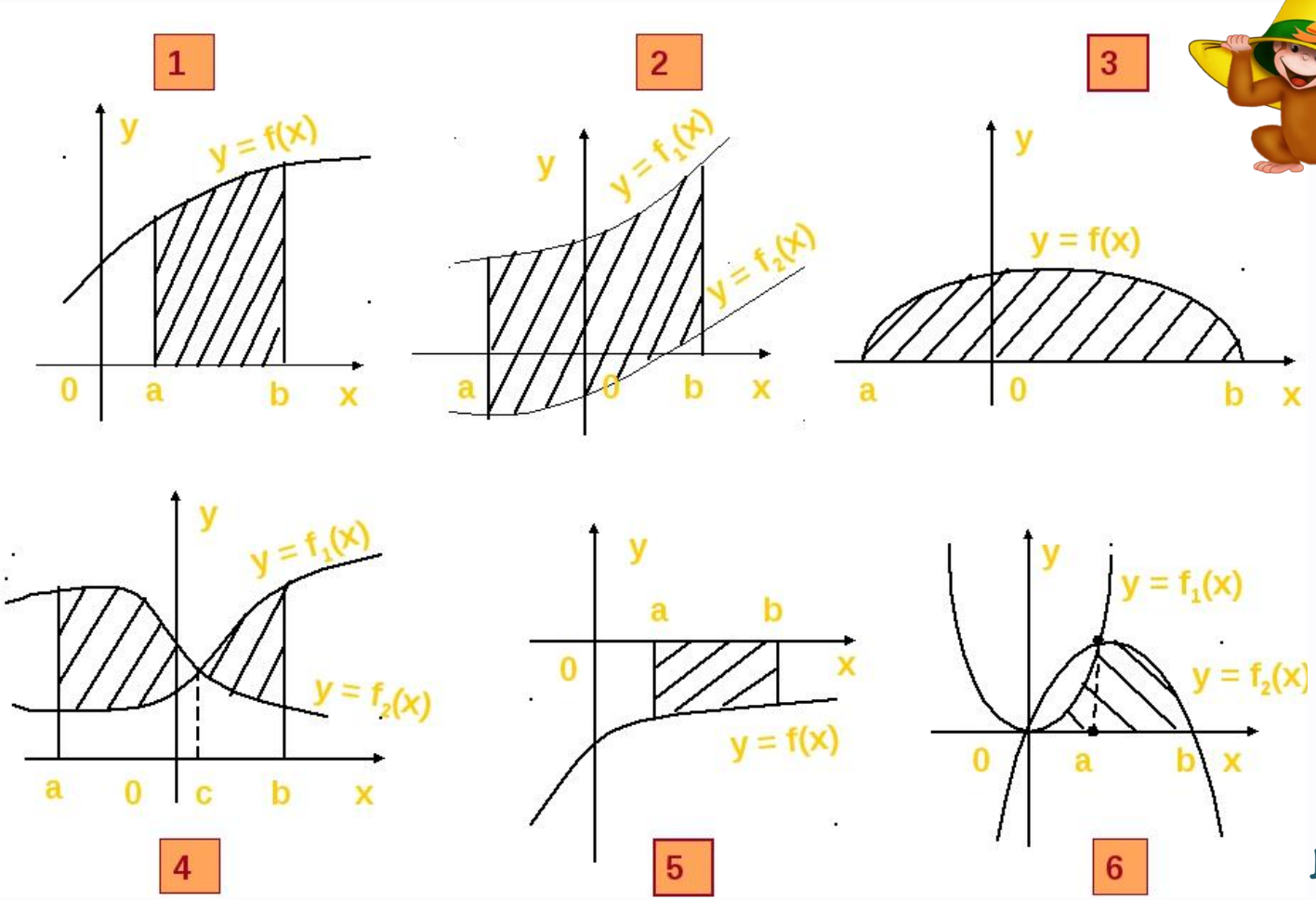


нет

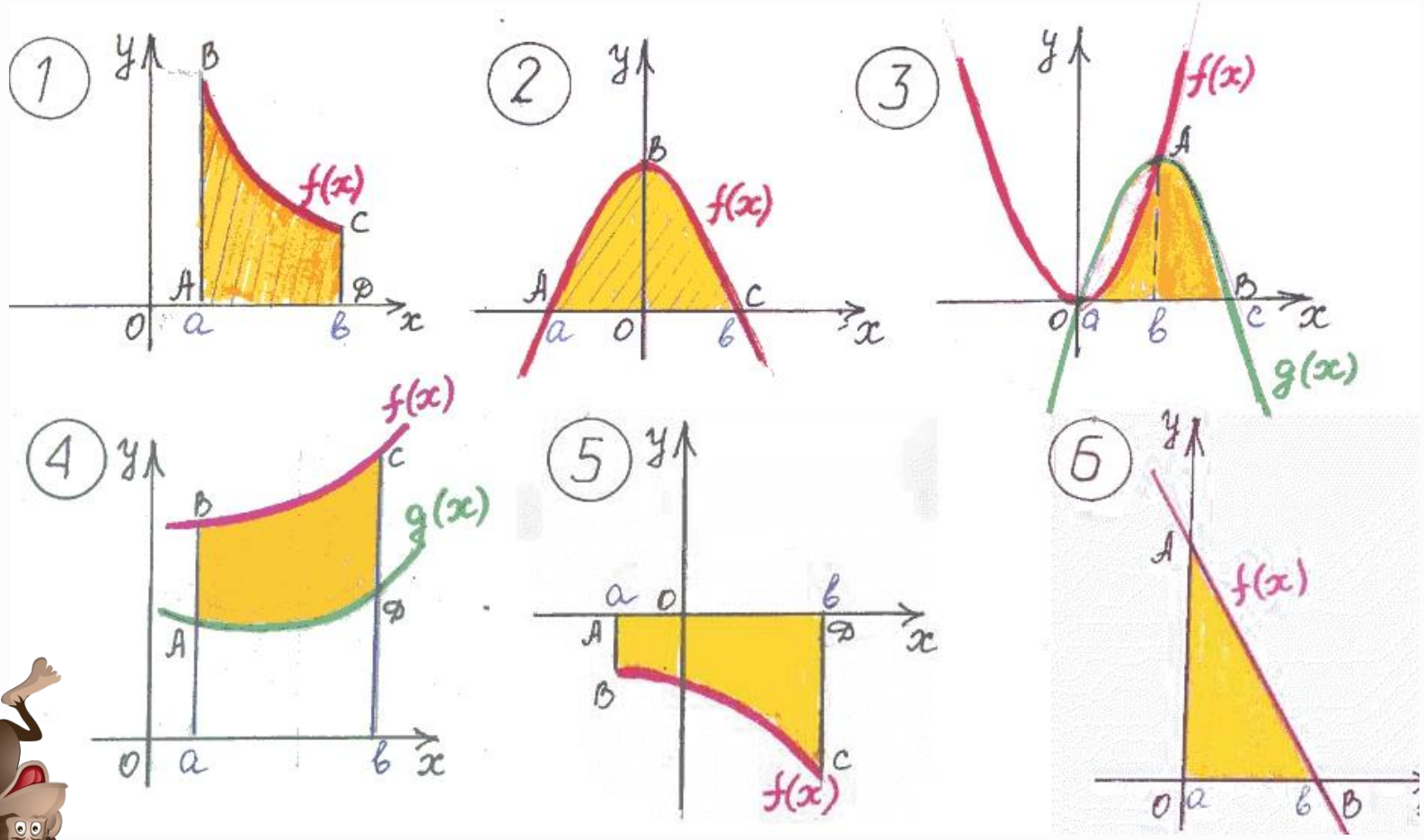
Самостоятельно решить:

ЗАДАНИЕ 1. Указать фигуры, которые являются криволинейными трапециями

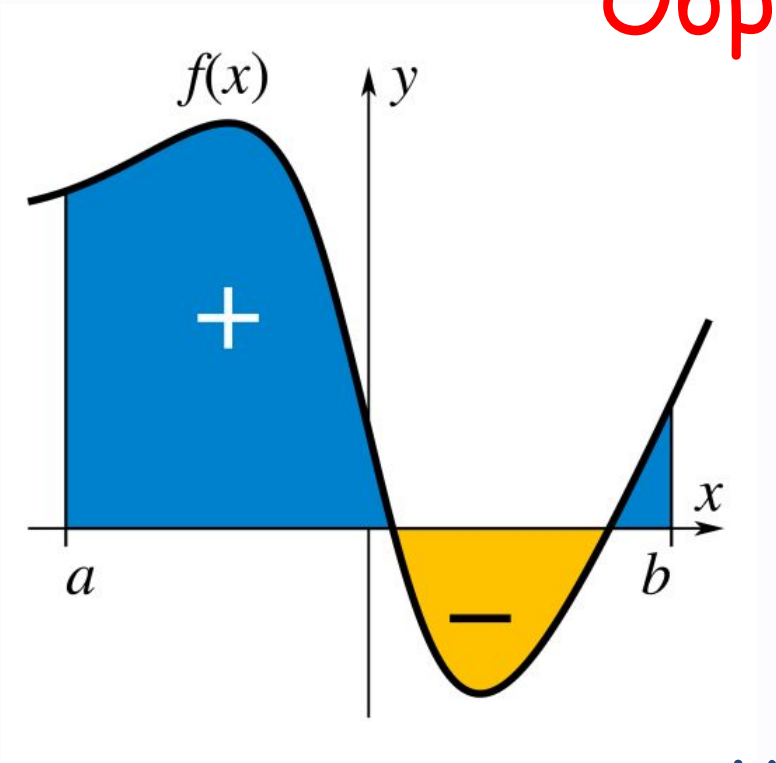


Лист 1

ЗАДАНИЕ 2. Указать фигуры, которые не являются криволинейными трапециями



Обратить внимание !!!



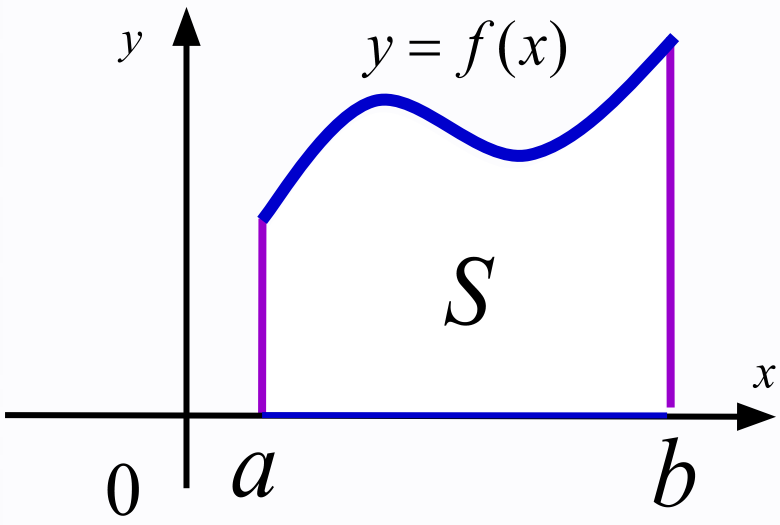
Не криволинейная трапеция

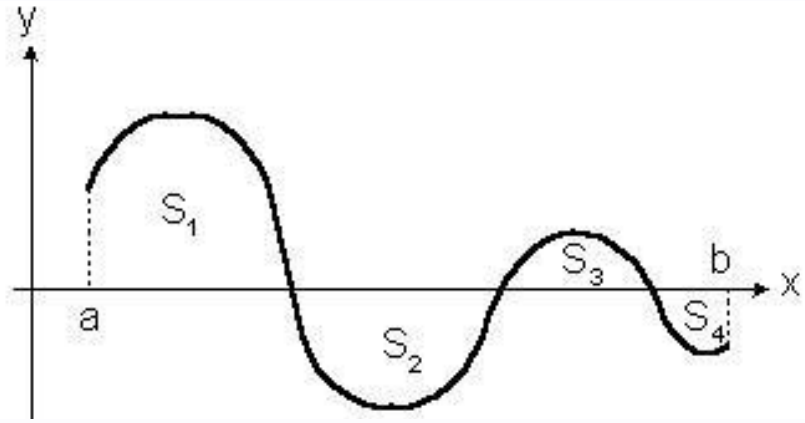
Можно разбить на 3 криволинейных трапеции

КАК НАЙТИ ПЛОЩАДЬ КРИВОЛИНЕЙНОЙ ТРАПЕЦИИ?

$$\boxed{S = F(b) - F(a)}$$

F(x) – любая первообразная функции **f(x)**.

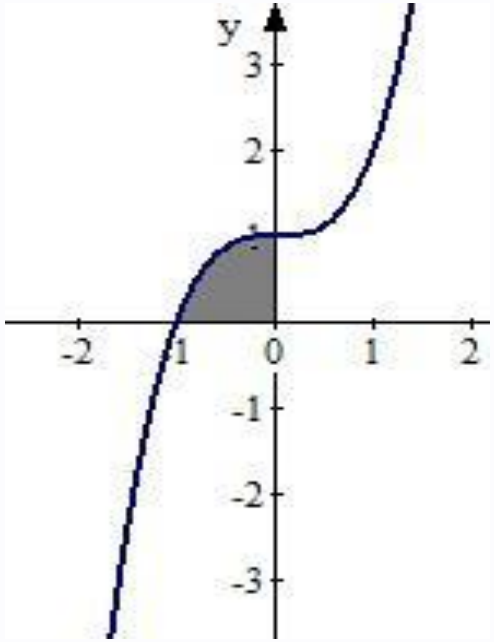




$$\int f(x)\,dx = S_1 - S_2 + S_3 - S_4$$

Пример использования формулы $\boxed{S = F(b) - F(a)}$

для нахождения площади криволинейной трапеции



-Вычислить площадь фигуры, ограниченной линиями $y = x^3+1$, $y=0$, $x=0$.

Решение.

Изобразим схематично фигуру, площадь которой надо найти (рис.)

Найдём одну из первообразных (C=0).

$F(x) = x^4/4 + x.$

$S = F(0) - F(-1) = (0+0) - (1/4 - (-1)) =$

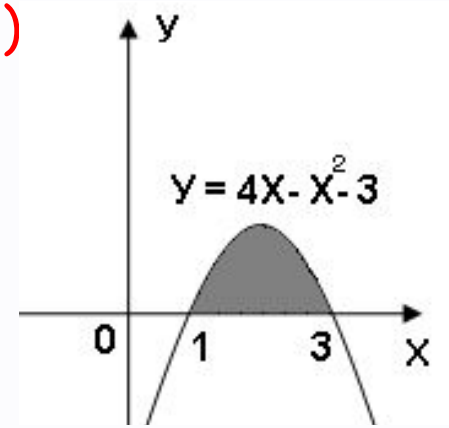
$= -1/4 + 1 = \frac{3}{4}$ (ед.кв.)

ЗАДАНИЯ «От простого к сложному».

По готовым рисункам найти площади фигур.

(Вариант 1 – задания с нечётными номерами, Вариант 2 – с чётными)

1)



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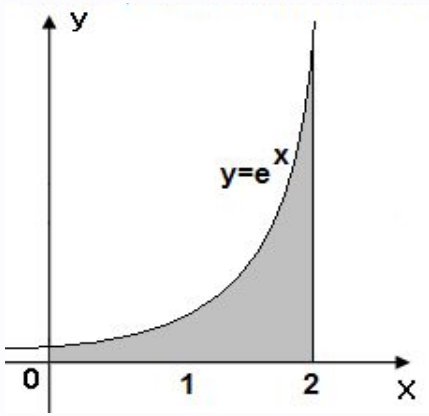

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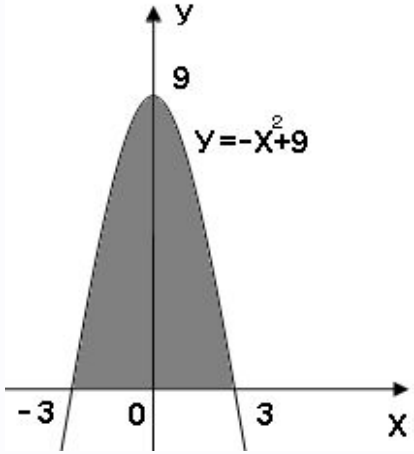

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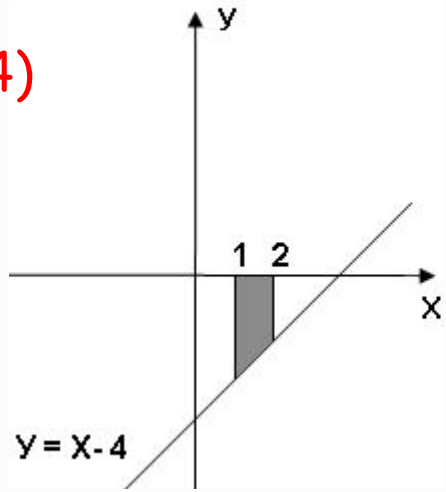

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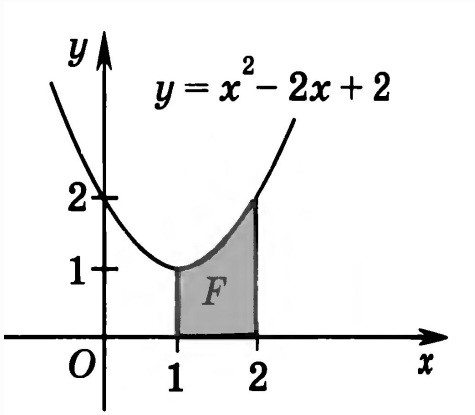

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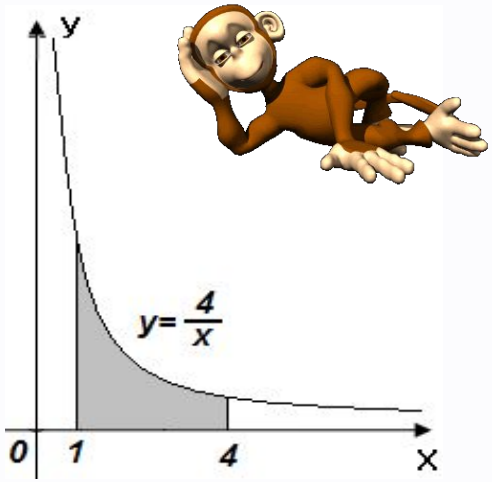
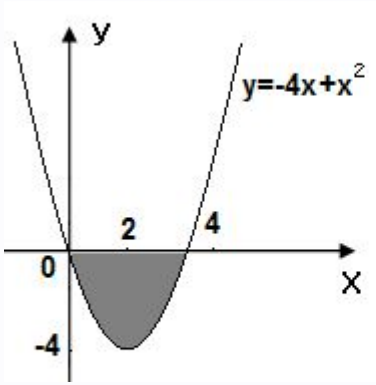


Лист 1

7)



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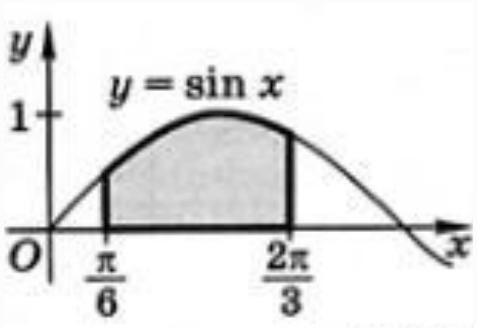

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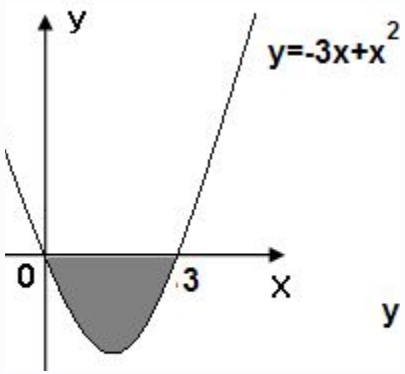

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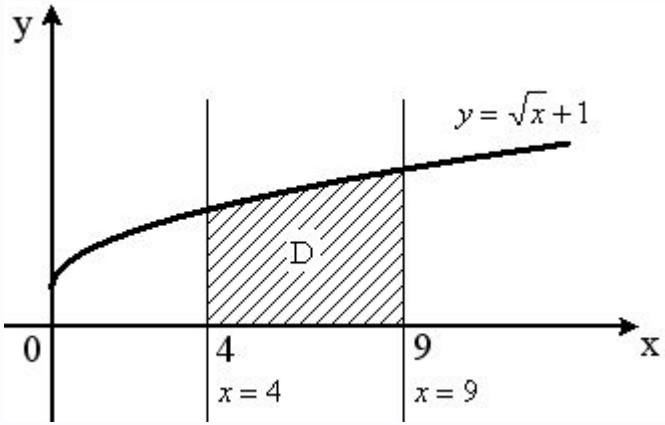

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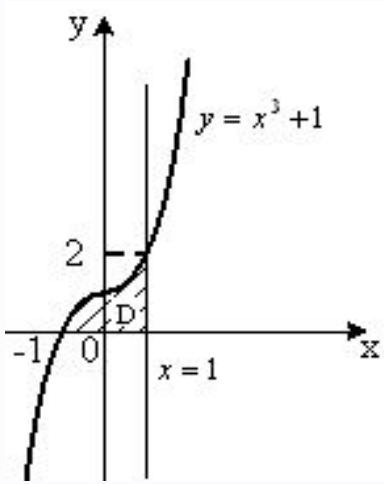

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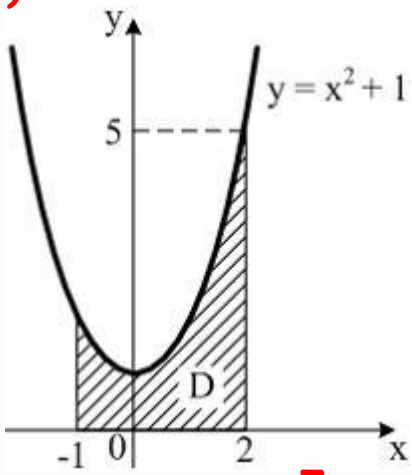

Лист 2

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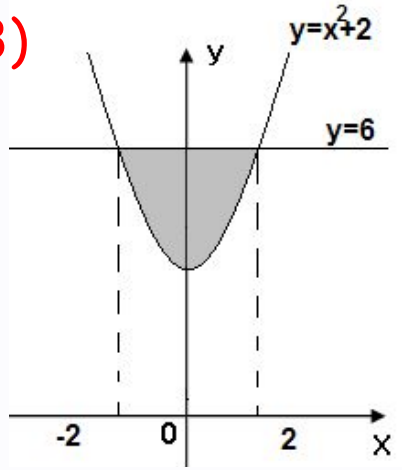

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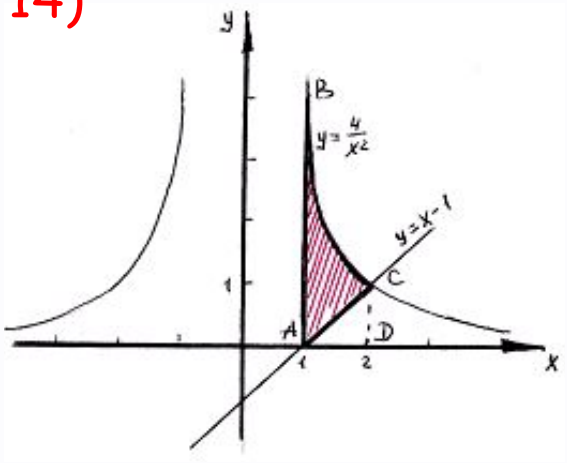

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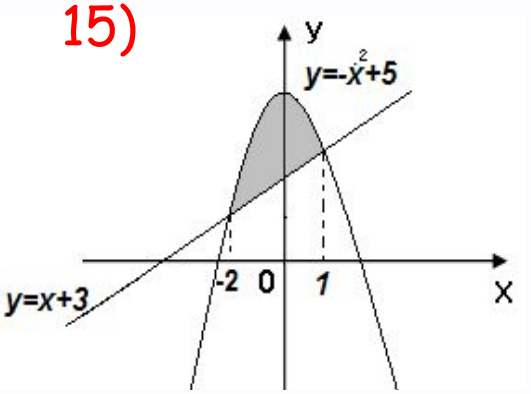

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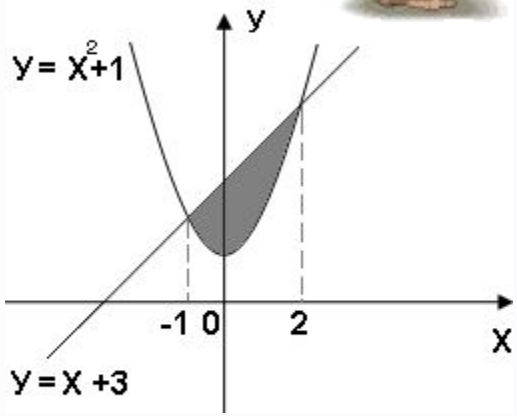

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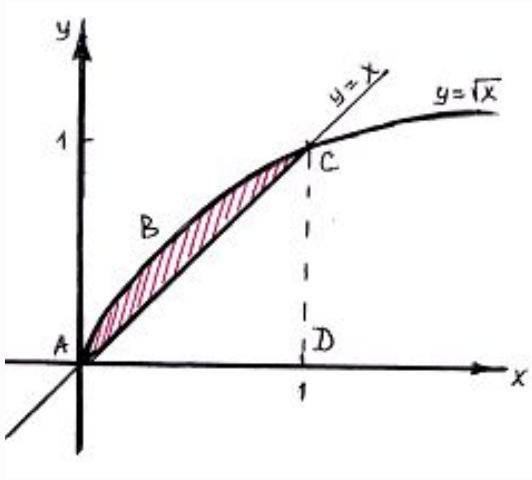

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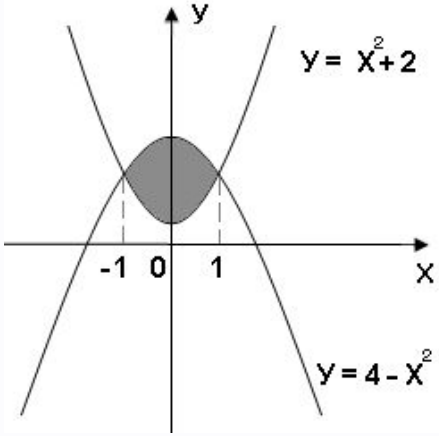

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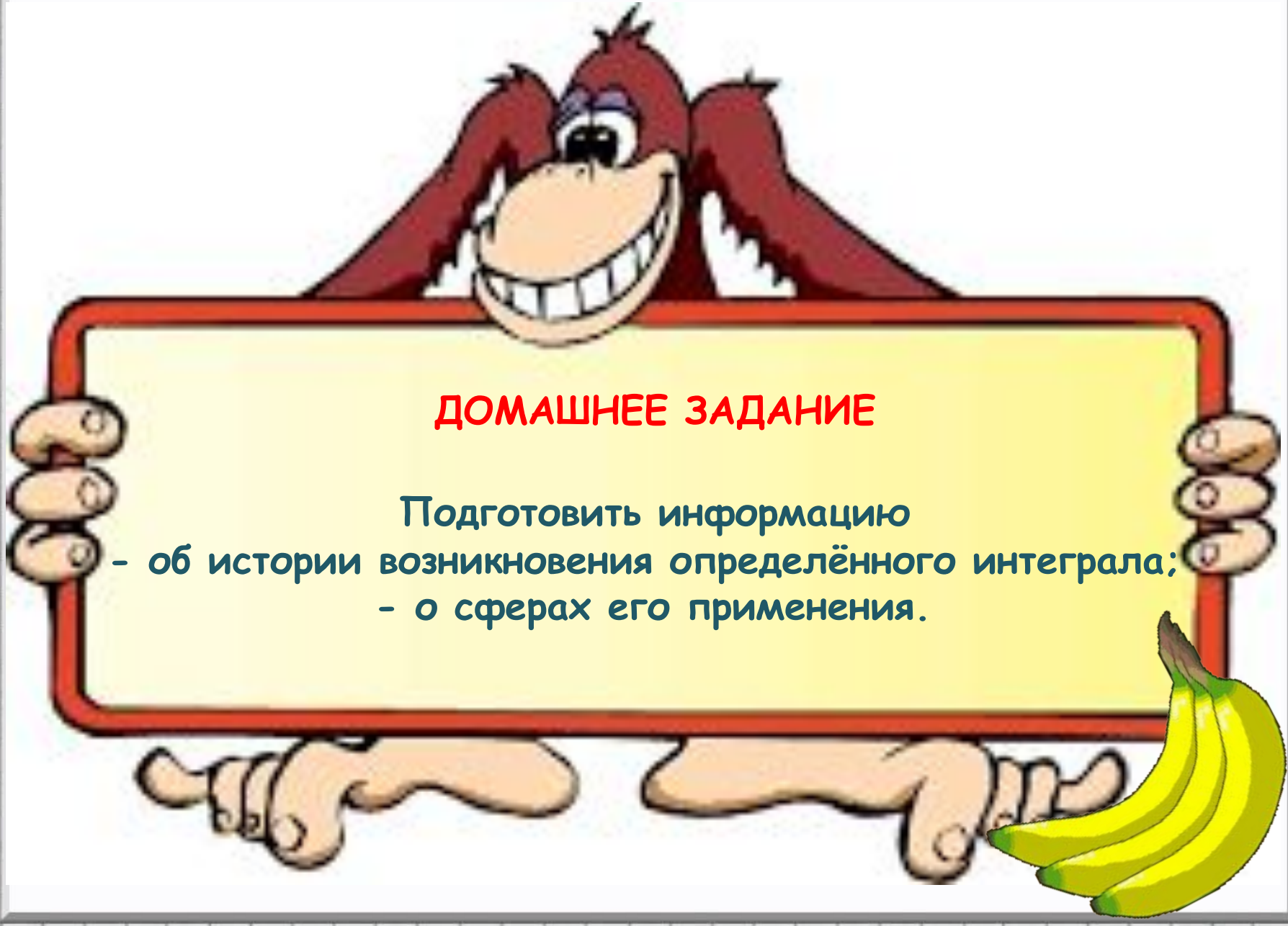

ДОМАШНЕЕ ЗАДАНИЕ

Подготовить информацию
- об истории возникновения определённого интеграла;
- о сферах его применения.