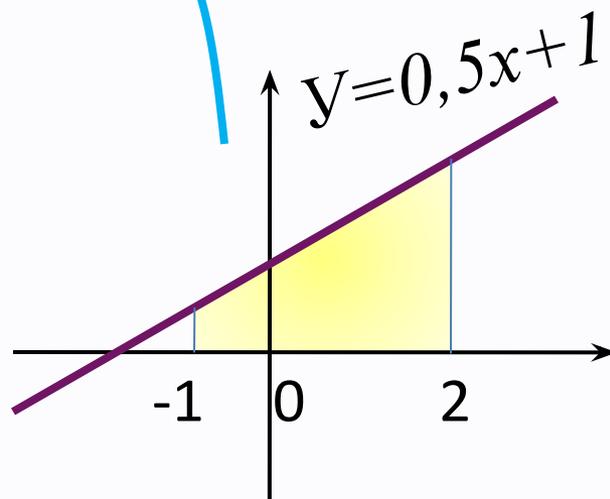
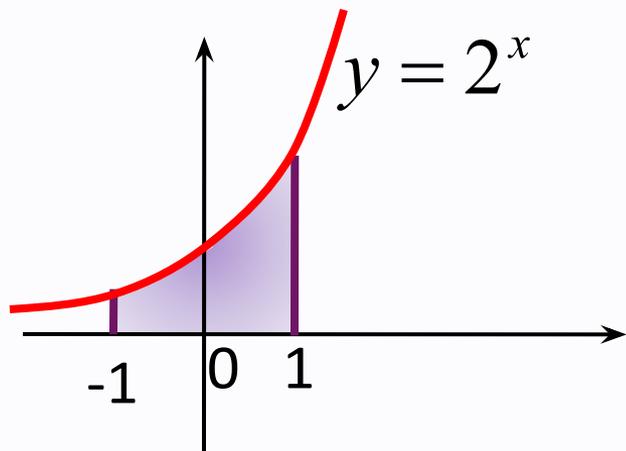
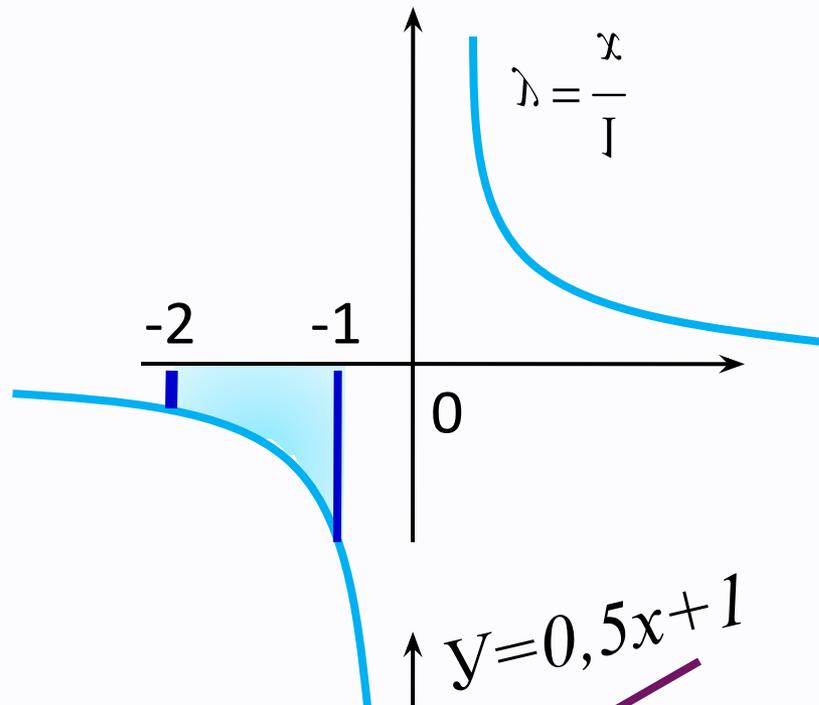
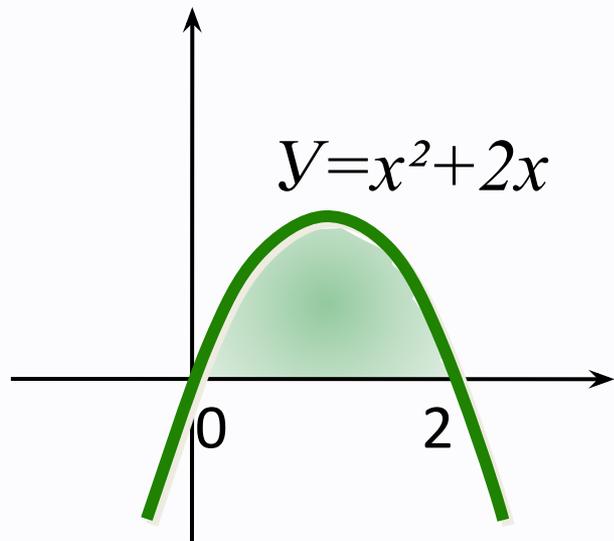


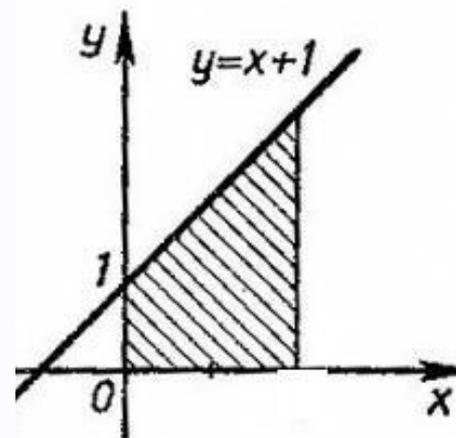
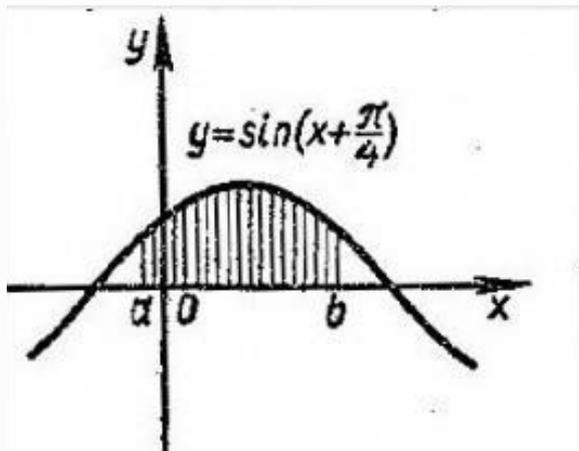
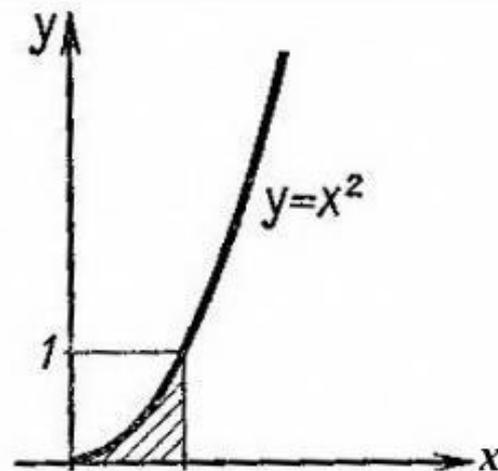
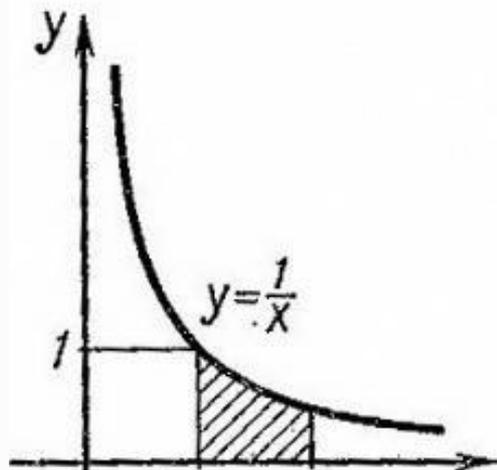
Площадь криволинейной трапеции



Различные виды криволинейных трапеций

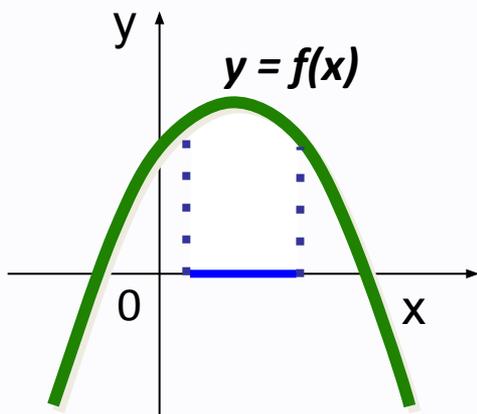


Различные виды криволинейных трапеций

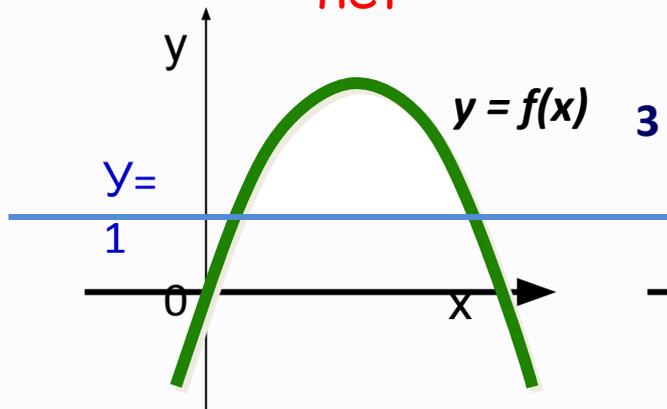


Являются ли криволинейными трапециями фигуры?

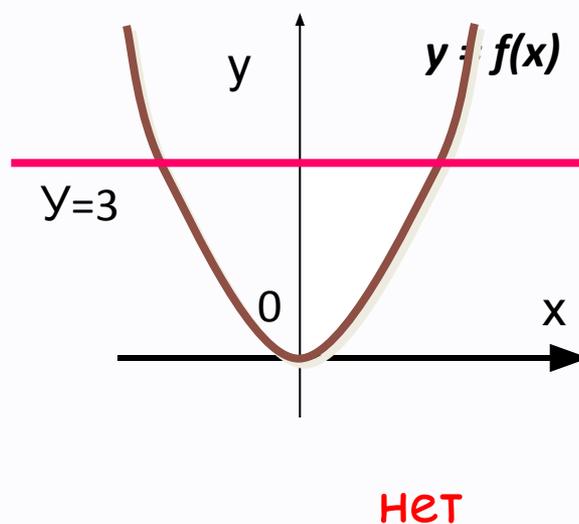
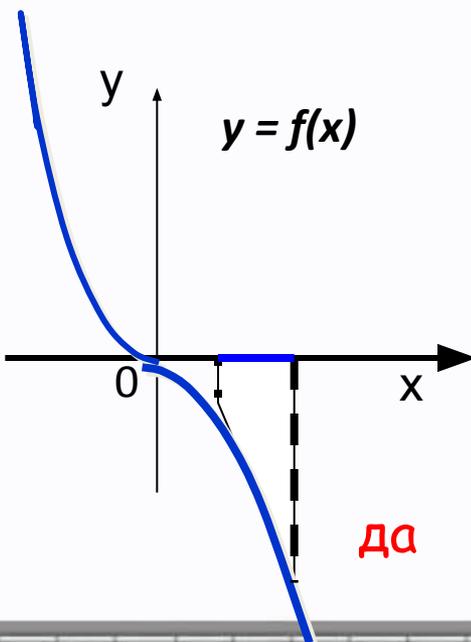
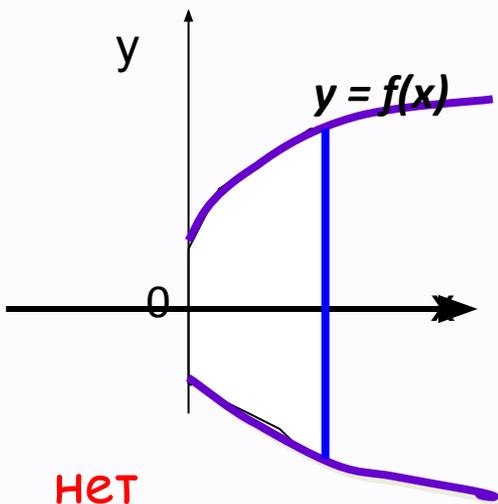
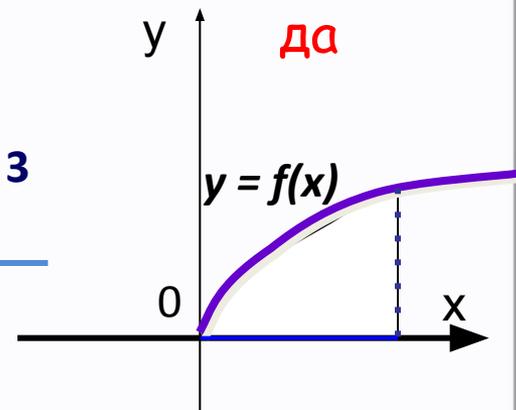
да



нет



да



нет

да

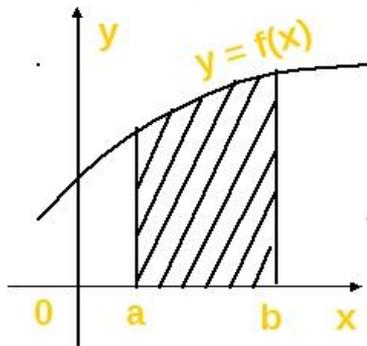
нет

Самостоятельно решить:

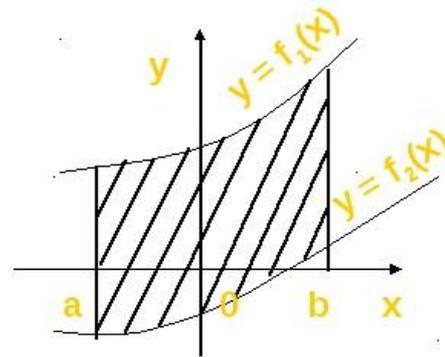
ЗАДАНИЕ 1. Указать фигуры, которые являются криволинейными трапециями



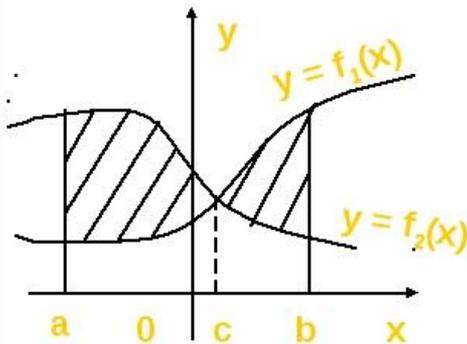
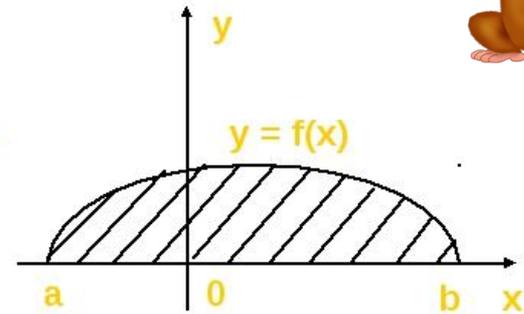
1



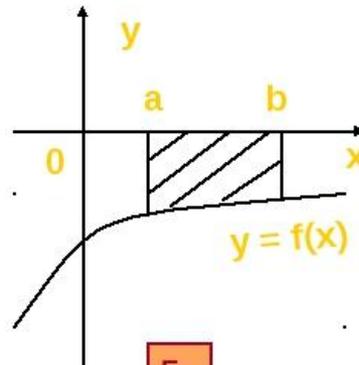
2



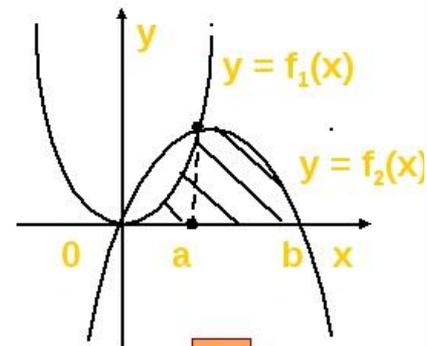
3



4

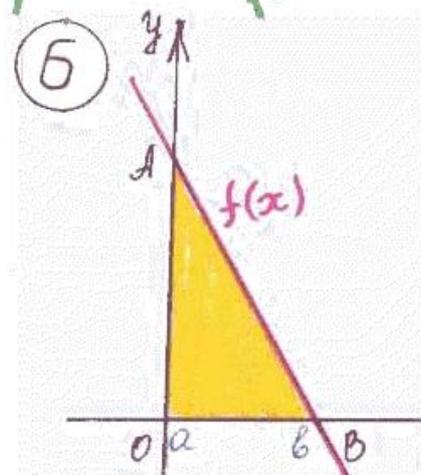
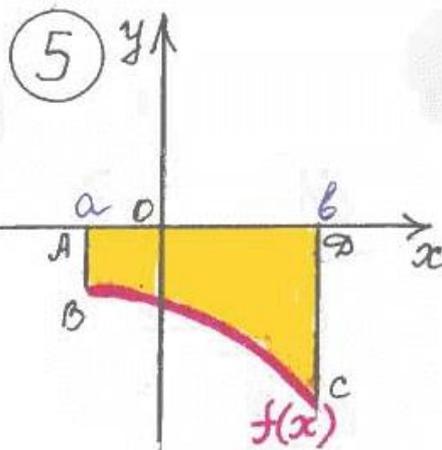
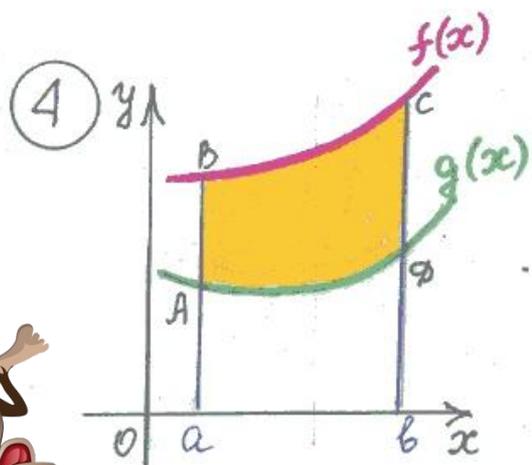
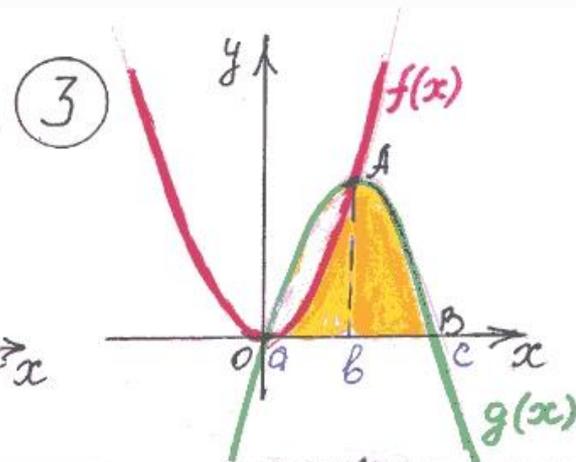
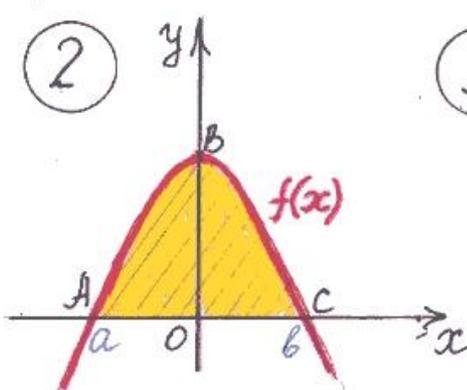
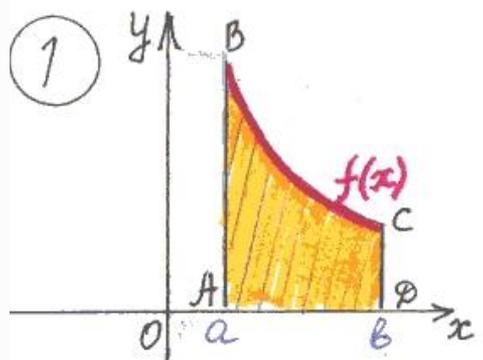


5

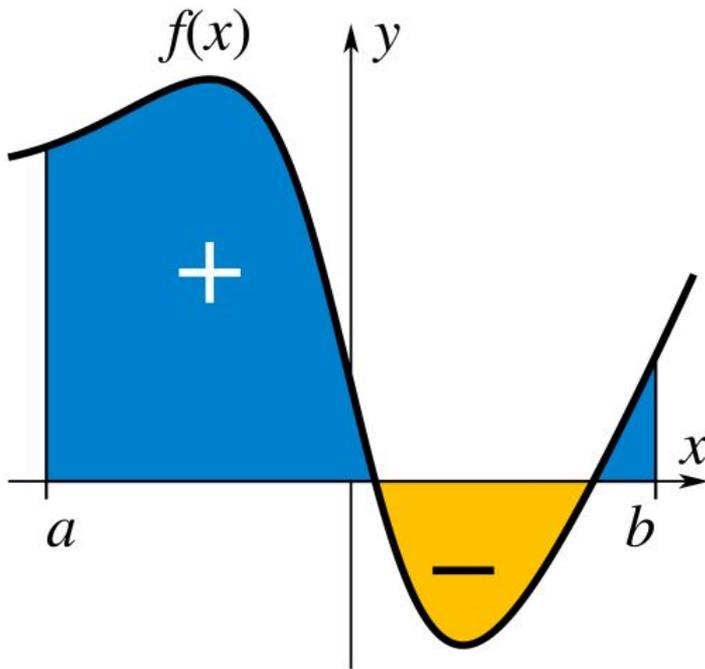


6

ЗАДАНИЕ 2. Указать фигуры, которые не являются криволинейными трапециями



Обратить внимание !!!



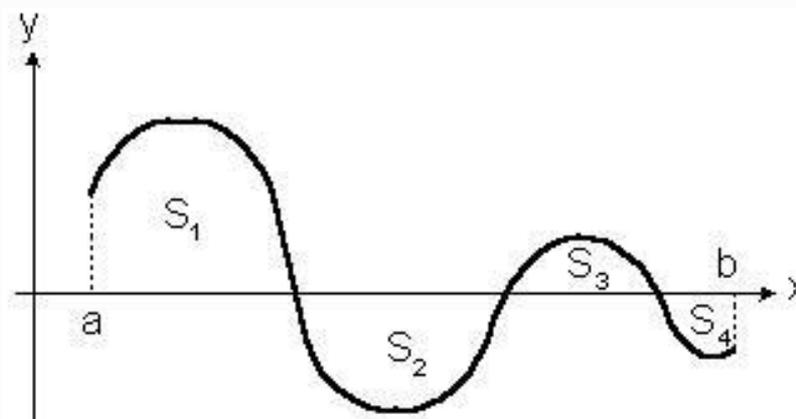
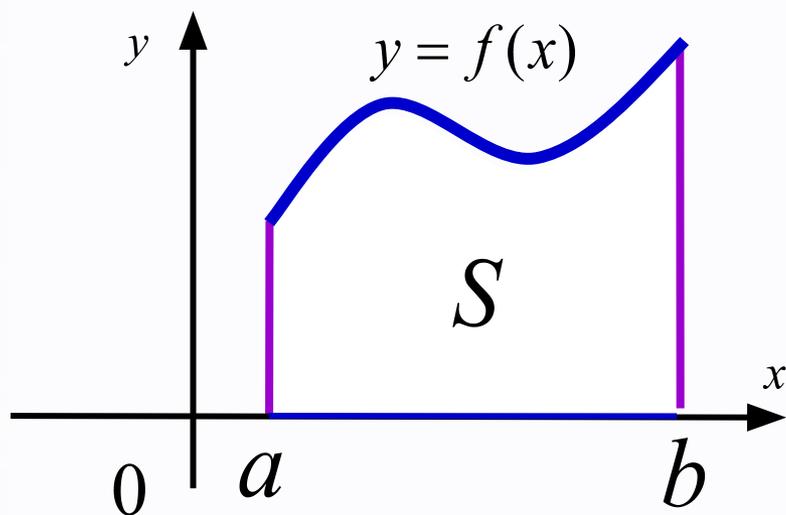
Не криволинейная трапеция

Можно разбить на 3 криволинейных трапеции

КАК НАЙТИ ПЛОЩАДЬ КРИВОЛИНЕЙНОЙ ТРАПЕЦИИ?

$$S = F(b) - F(a)$$

$F(x)$ - любая первообразная функции $f(x)$.

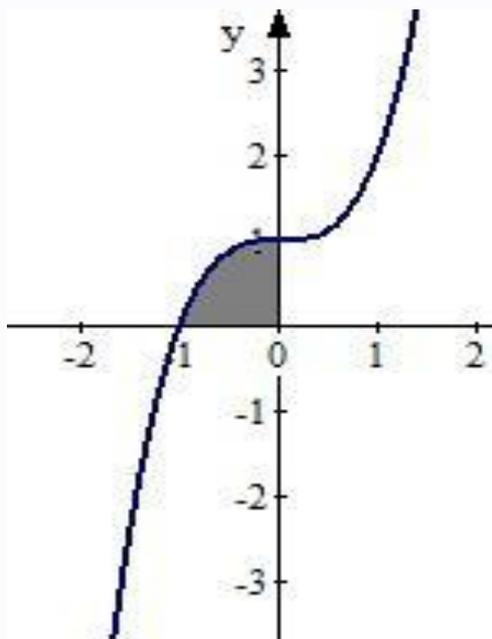


$$\int f(x) dx = S_1 - S_2 + S_3 - S_4$$

Пример использования формулы

$$S = F(b) - F(a)$$

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 ($C=0$).

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

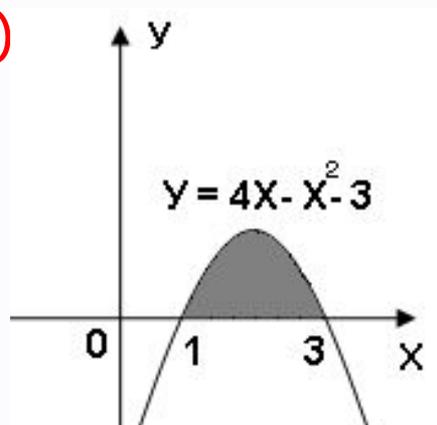
$$\begin{aligned} S &= F(0) - F(-1) = (0+0) - (1/4 - (-1)) = \\ &= -1/4 + 1 = \frac{3}{4} \text{ (ед.кв.)} \end{aligned}$$

ЗАДАНИЯ «От простого к сложному».

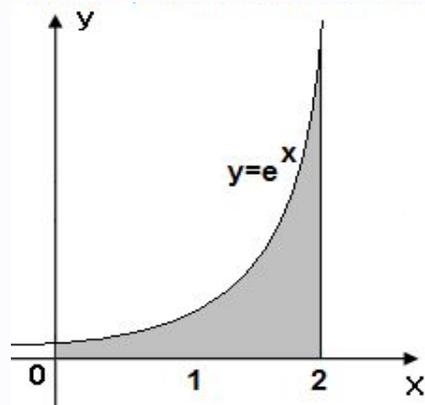
По готовым рисункам найти площади фигур.

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

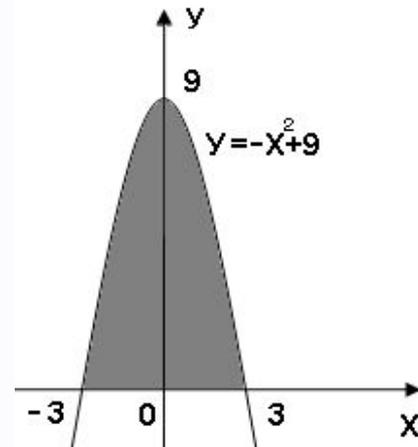
1)



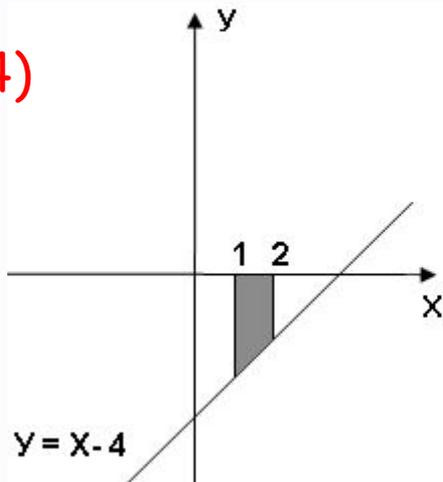
2)



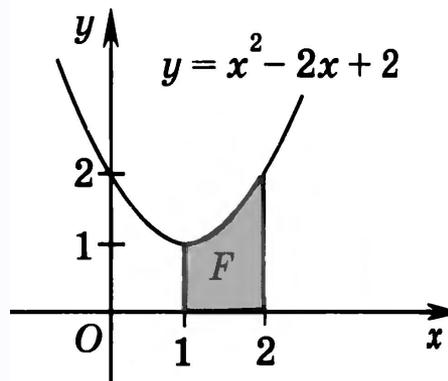
3)



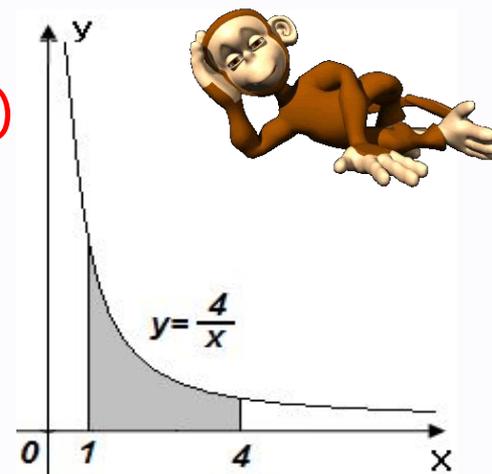
4)



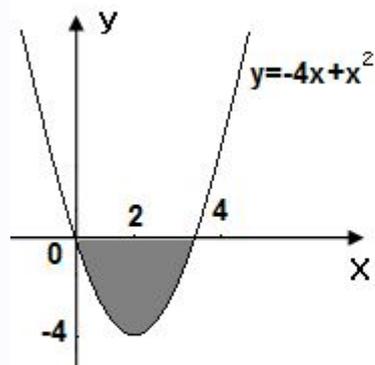
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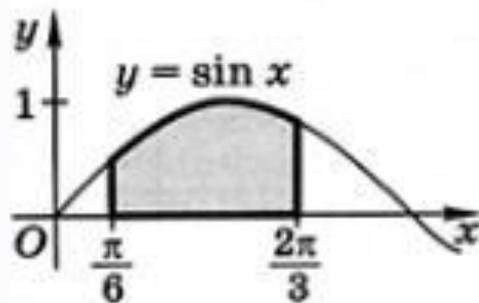
6)



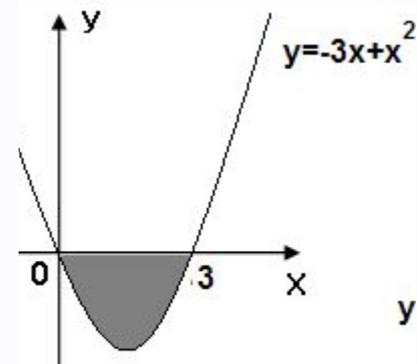
7)



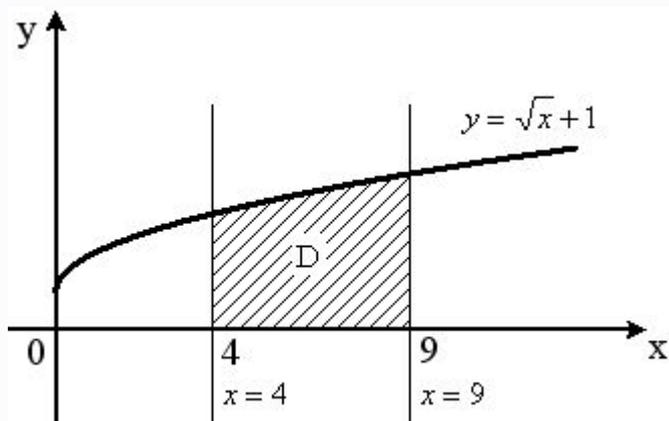
8)



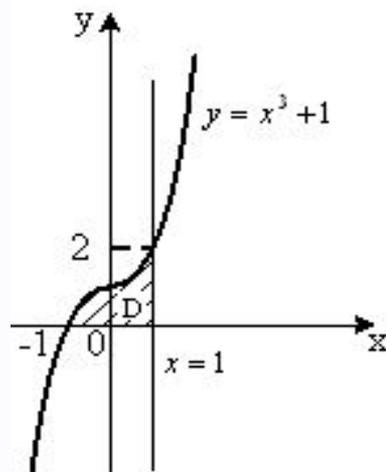
9)



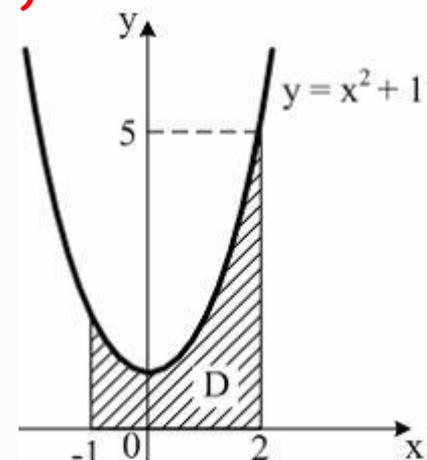
10)



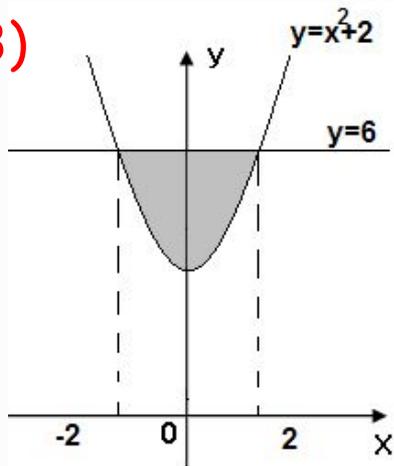
11)



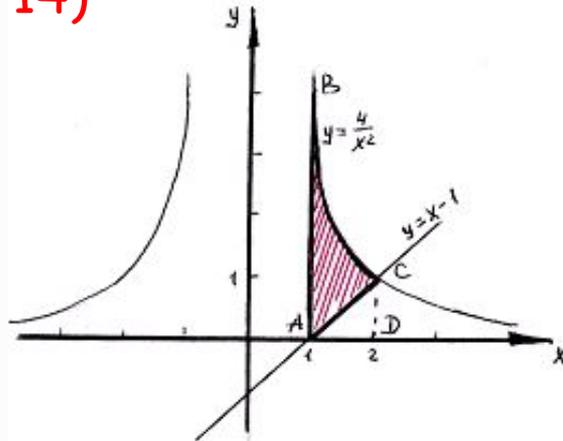
12)



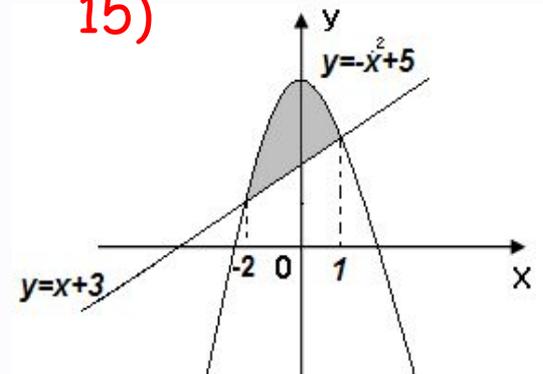
13)



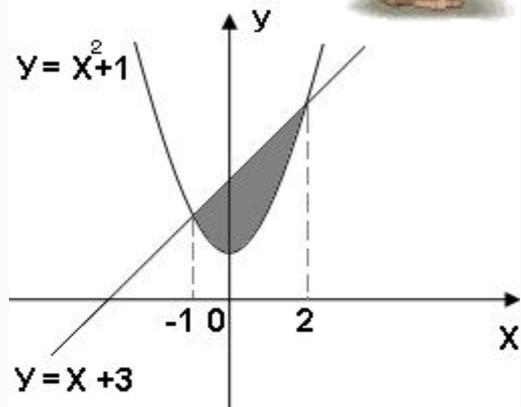
14)



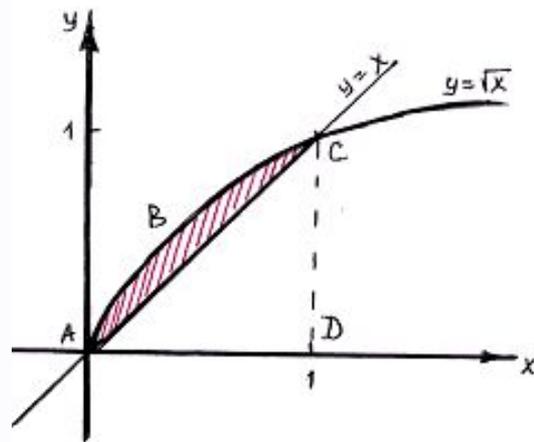
15)



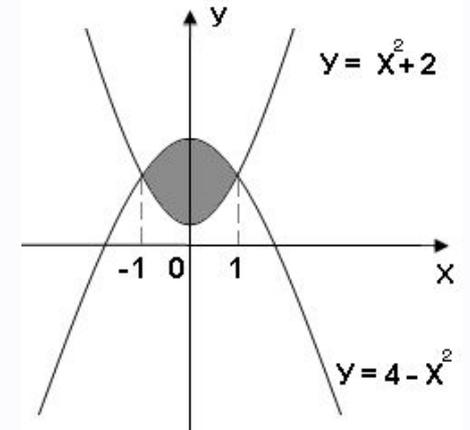
16)

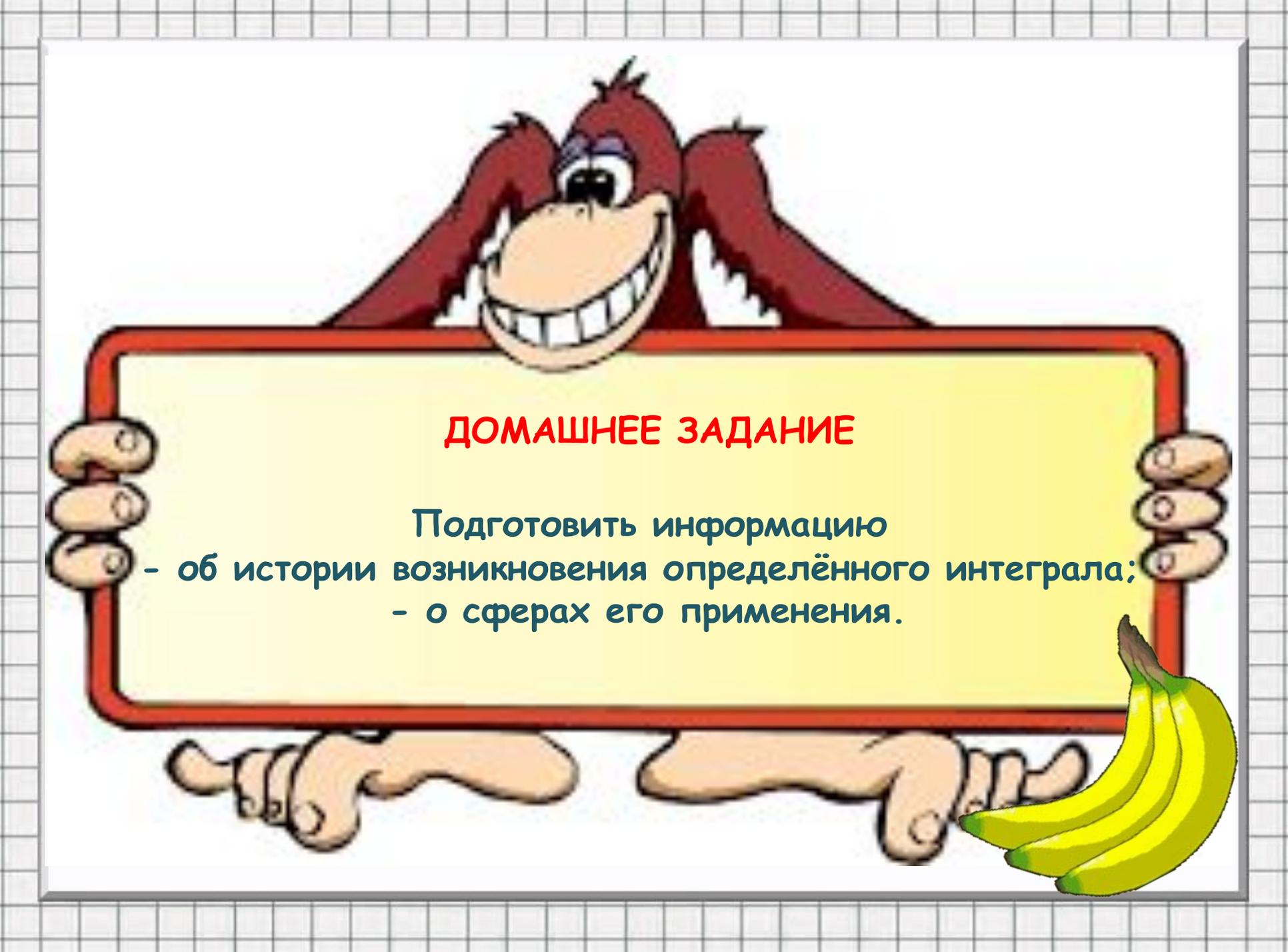


17)



18)





ДОМАШНЕЕ ЗАДАНИЕ

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