



integração





Derivada: incremento da função num dado intervalo

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crescimento constante com ângulo de 45° ($\tan \theta = 1$)



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$$\int f'(x) dx = f(x)$$

$$\int_{\alpha}^{\beta} f'(x) dx = f(\beta) - f(\alpha)$$



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Exemplos



Exemplos

$$\int 1 \, dx$$

qual função derivada dará 1 ?

resposta: x



Exemplos

$$\int 1 dx$$

qual função derivada dará 1 ?

resposta: x

$$\int x dx$$

qual função derivada dará x ?

resposta: $\frac{x^2}{2}$



integração

$$\int (3x^2 + 2x + 2) e^x dx = ?$$



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$$(ax^2 + bx + c)' e^x + (ax^2 + bx + c) (e^x)'$$



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$$(2ax + b)e^x + (ax^2 + bx + c)e^x$$



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$$[ax^2 + (2a + b)x + b + c] e^x$$



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$$\{a = 3, b = -4, c = 6\}$$



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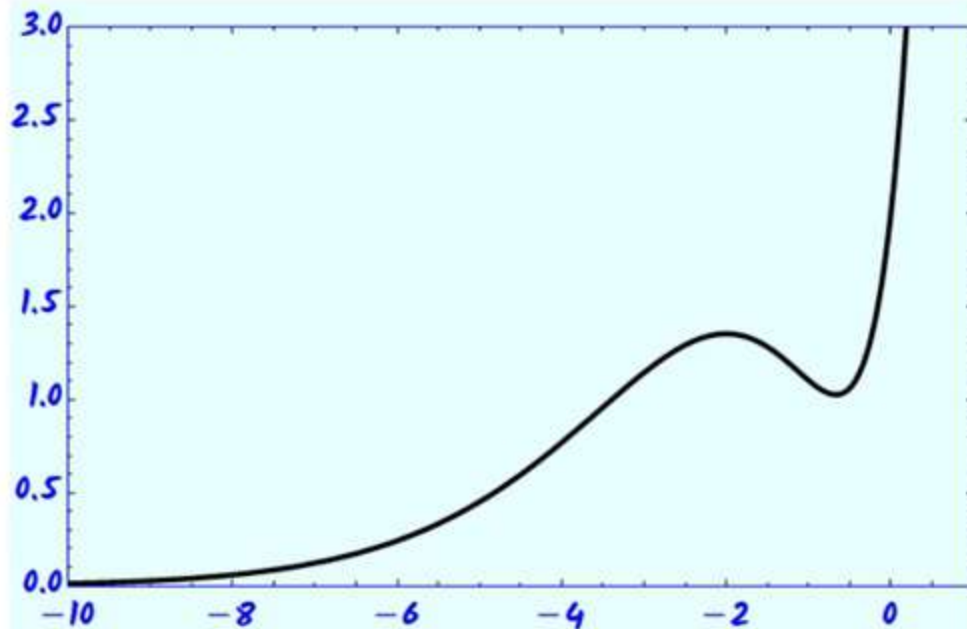
$$[ax^2 + (2a + b)x + b + c]e^x = (3x^2 + 2x + 2)e^x$$

$$\{a = 3, b = -4, c = 6\}$$

$$\int (3x^2 + 2x + 2) e^x dx = (3x^2 - 4x + 6) e^x$$



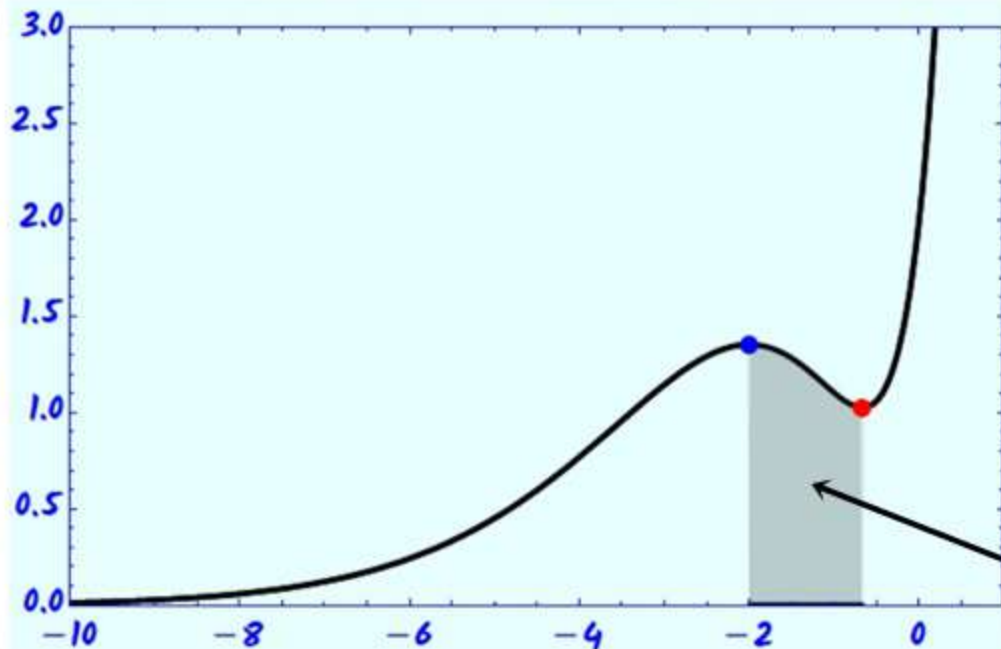
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$$e^x (3x^2 + 2x + 2)$$



integração

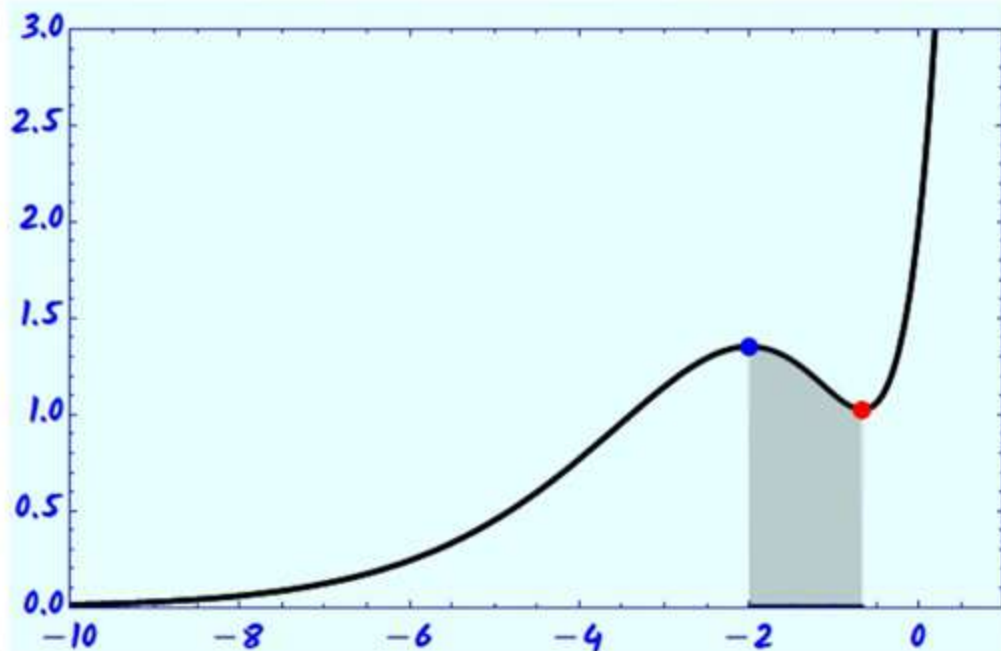


$$e^x(3x^2 + 2x + 2)$$

área entre max e min



integração



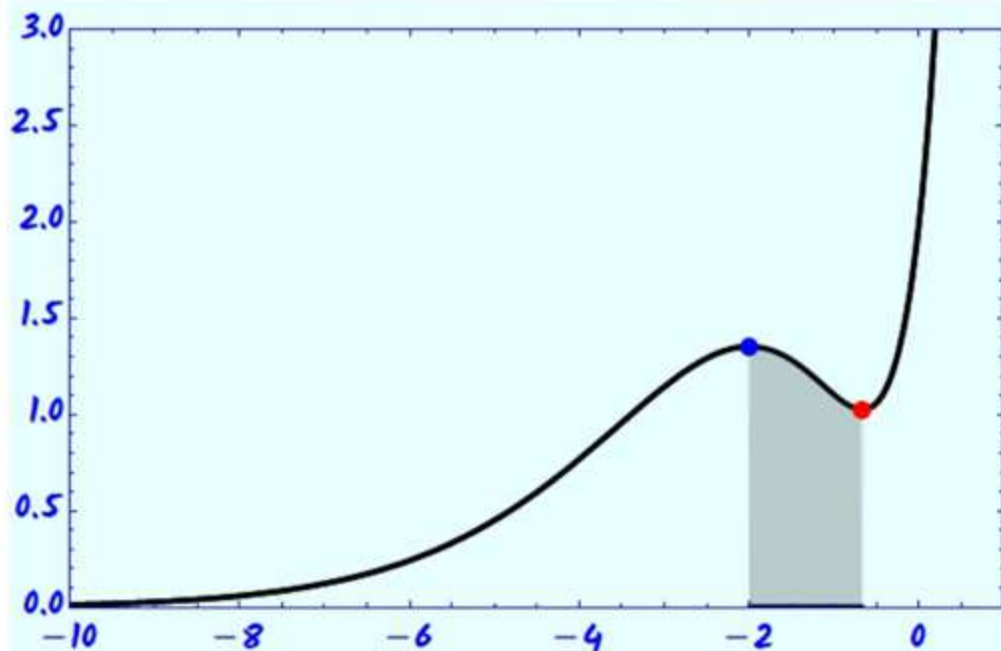
$$e^x(2+x)(2+3x)$$

derivada

$$e^x(3x^2 + 2x + 2)$$



integração



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derivada

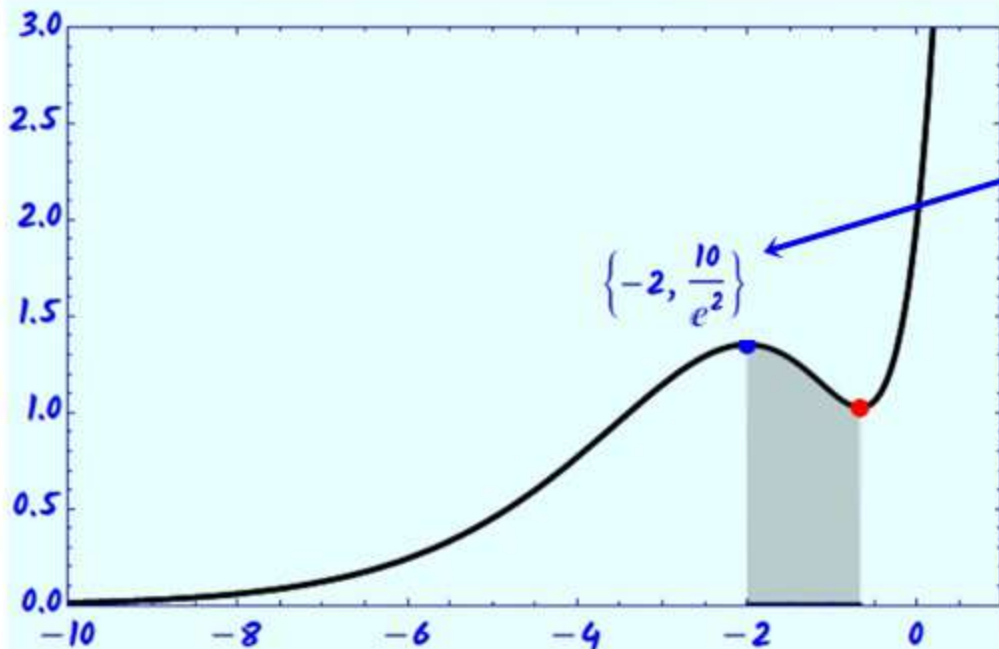
$$e^x(3x^2+2x+2)$$

integral

$$e^x(6-4x+3x^2)$$



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derivada

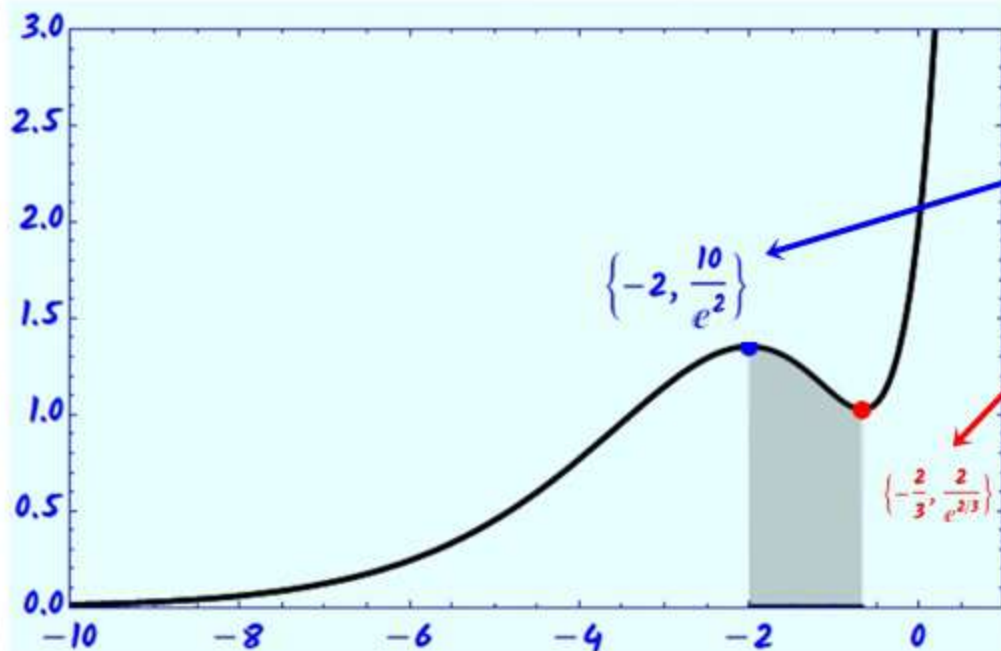
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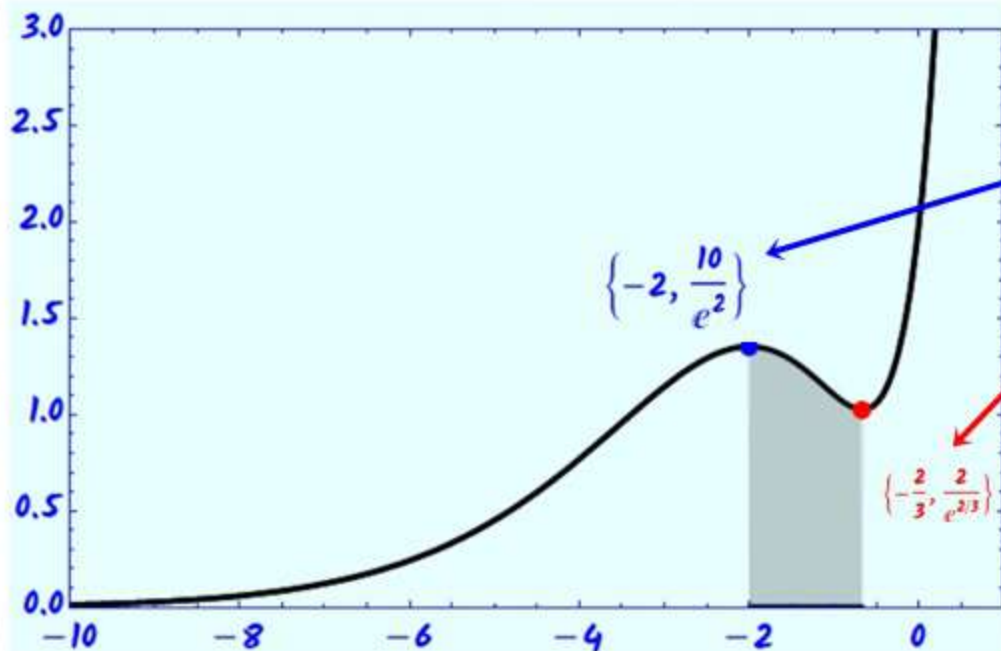
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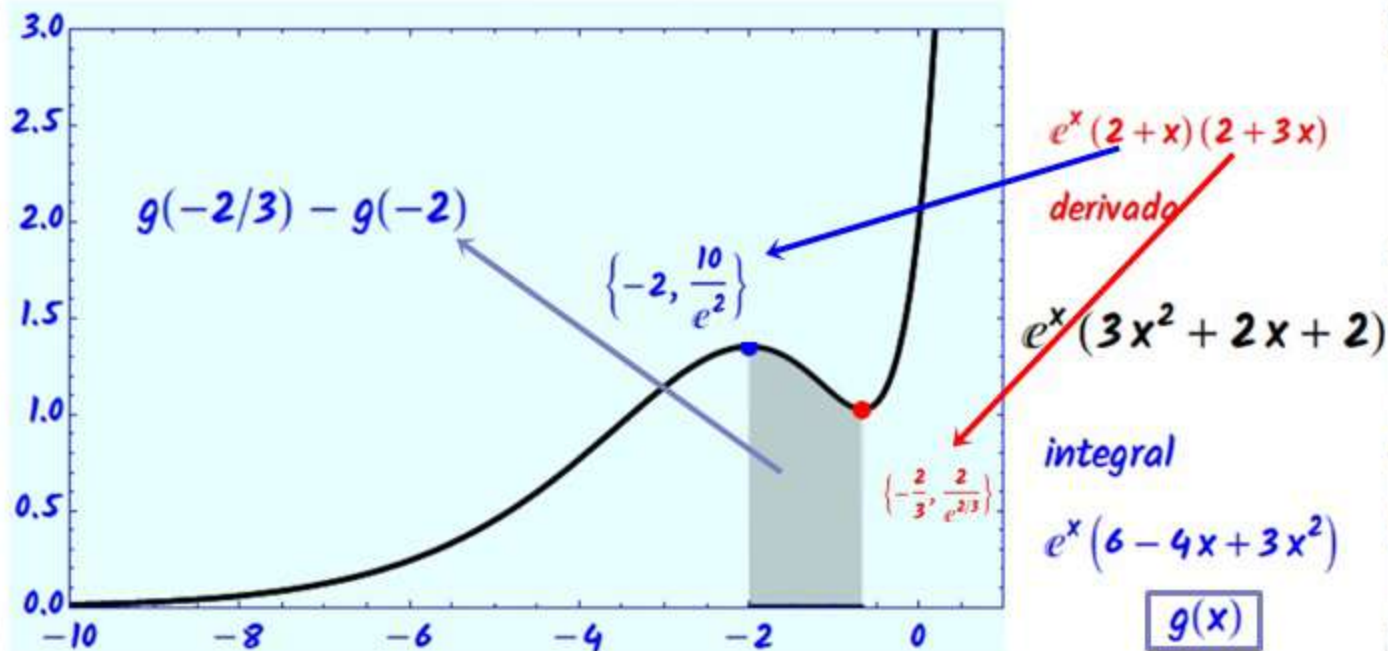
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$$e^x(6 - 4x + 3x^2)$$

$g(x)$

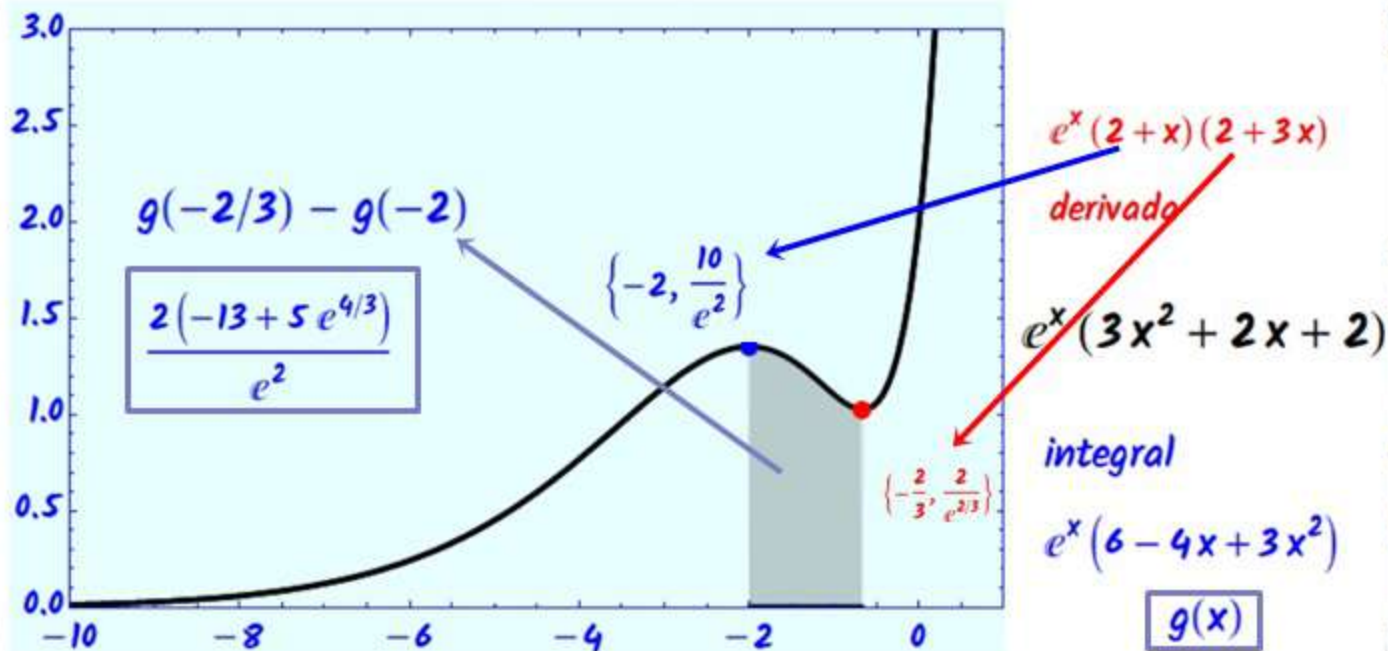


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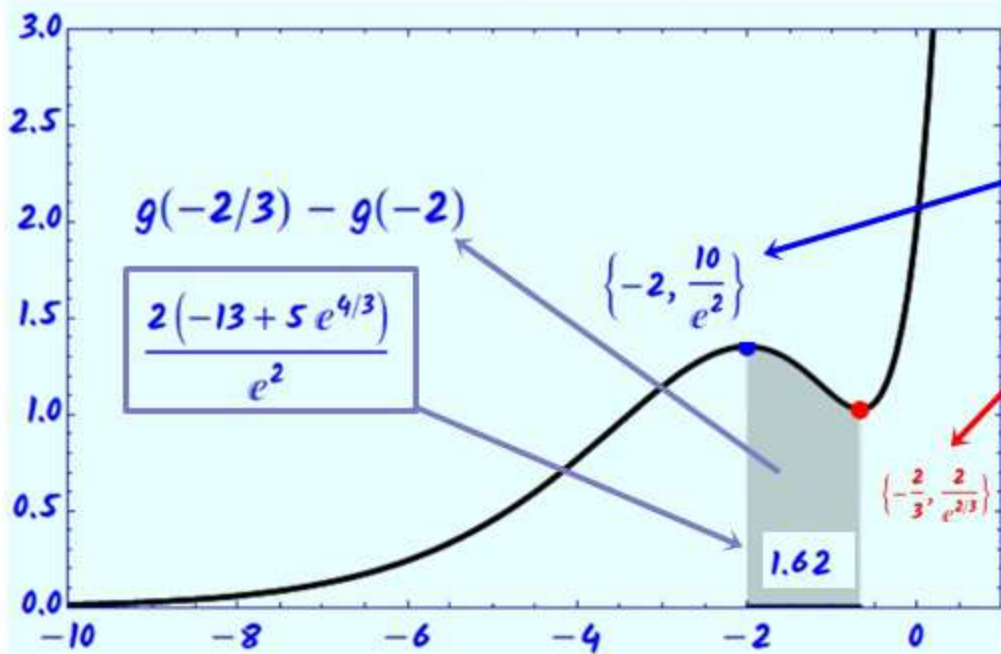


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$g(x)$