

$$\text{expr} := \text{abs}(A \cdot B \cdot C + 1 + x^{(C+1)}) - x^{(B+1)} + A;$$

$$|A B C + 1 + x^{C+1}| - x^{B+1} + A \quad (1)$$

$$\text{expr2} := \text{subs}(\{A=0, B=0, C=0\}, \text{expr}); \# \text{это } f(x) \text{ моего варианта}$$

$$|1 + x| - x \quad (2)$$

$$1) \quad f(x)$$

$$f := \text{unapply}(\text{expr2}, x);$$

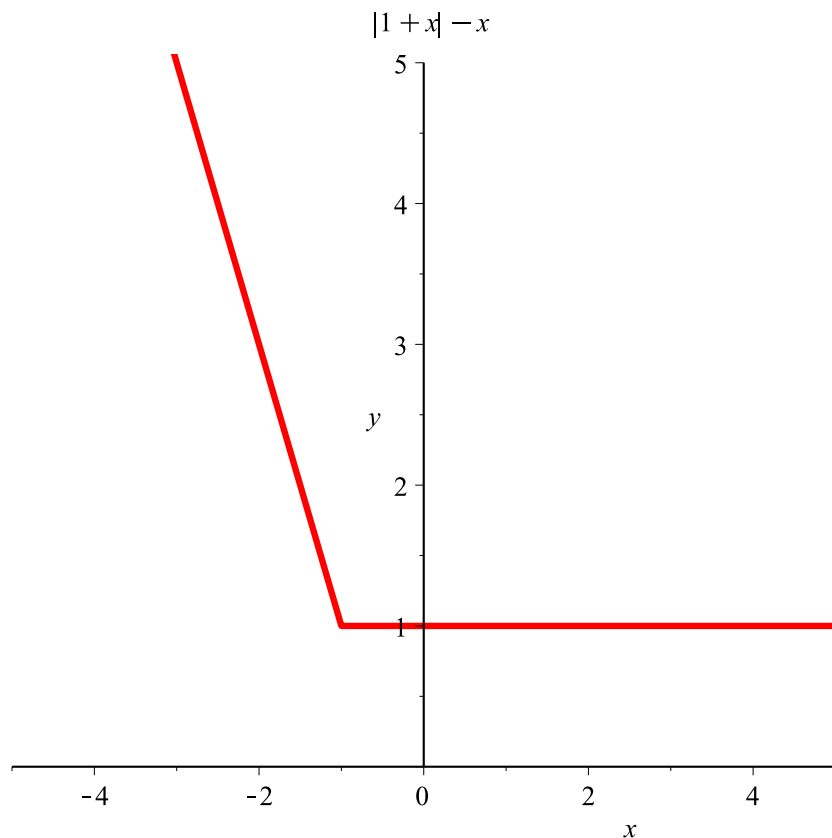
$$x \rightarrow |1 + x| - x \quad (3)$$

$$f(-1)$$

$$1 \quad (4)$$

$$2) \quad f(x)$$

$$\text{plot}(f(x), x=-5..5, y=0..5, \text{title} = \text{expr2}, \text{labels} = [x, y], \text{color} = \text{red}, \text{thickness} = 3);$$



$$3) \quad f(x) = 2, f(x) = 0, f(x) = -2$$

$$\text{fsolve}(f(x)=2, x);$$

$$-1.500000000 \quad (5)$$

$$\text{fsolve}(f(x)=2, x, \text{complex});$$

$$-1.500000000 \quad (6)$$

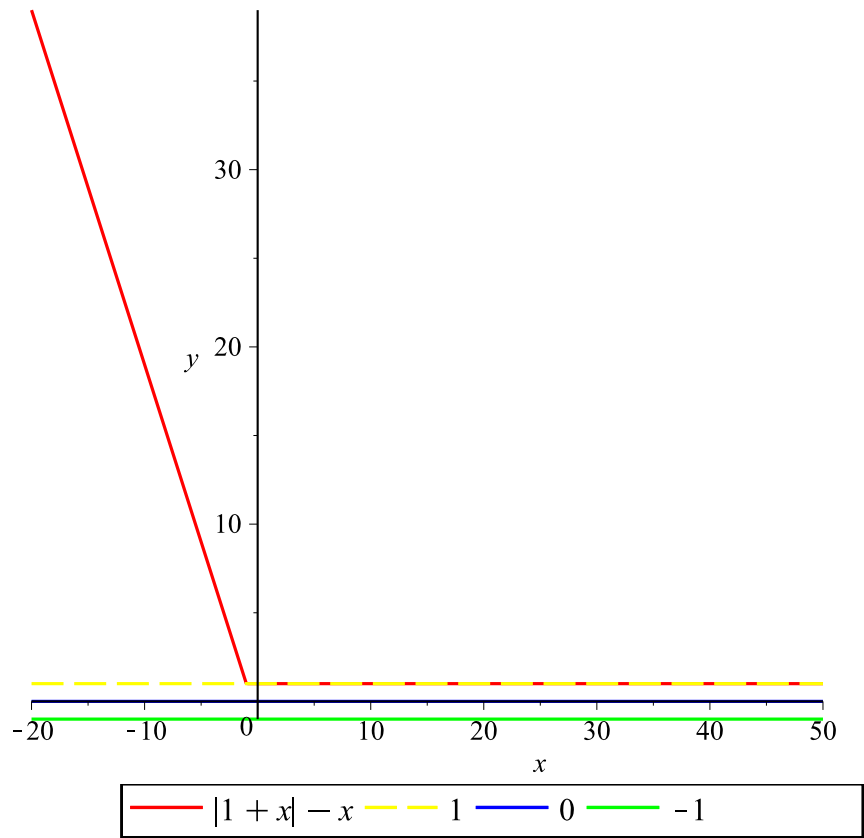
$$fsolve(f(x) = 0, x); \quad fsolve(|1 + x| - x = 0, x) \quad (7)$$

$$fsolve(f(x) = 0, x, complex); \quad fsolve(|1 + x| - x = 0, x, complex) \quad (8)$$

$$fsolve(f(x) = -2, x); \quad fsolve(|1 + x| - x = -2, x) \quad (9)$$

$$fsolve(f(x) = -2, x, complex); \quad fsolve(|1 + x| - x = -2, x, complex) \quad (10)$$

`plot([f(x), 1, 0, -1], x = -20 .. 50, color = [red, yellow, blue, green], linestyle = [solid, dash, solid],
legend = [f(x), 1, 0, -1], labels = [x, y]);`



`expr3 := piecewise(x < B - 1, limit(expr, x = B - 1), B - 1 ≤ x and x < C + 5, expr, C + 5 ≤ x,
limit(expr, x = C + 5));`

$$\left\{ \begin{array}{ll} \lim_{x \rightarrow B-1} (|A B C + 1 + x^{C+1}| - x^{B+1} + A) & x < B-1 \\ |A B C + 1 + x^{C+1}| - x^{B+1} + A & B-1 \leq x \text{ and } x < C+5 \\ \lim_{x \rightarrow C+5} (|A B C + 1 + x^{C+1}| - x^{B+1} + A) & C+5 \leq x \end{array} \right. \quad (11)$$

```

expr4 := subs( {A=0, B=0, C=0}, expr3) :
a := B-2 : b := A+B+C+6 :
g := unapply(expr4, x) :
a1 := subs(B=0, a) :
b1 := subs( {A=0, B=0, C=0}, b) :
g(x);

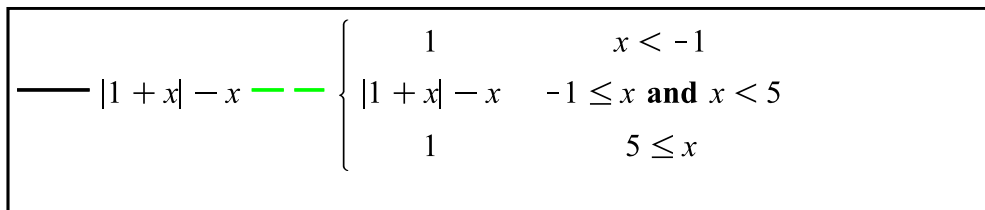
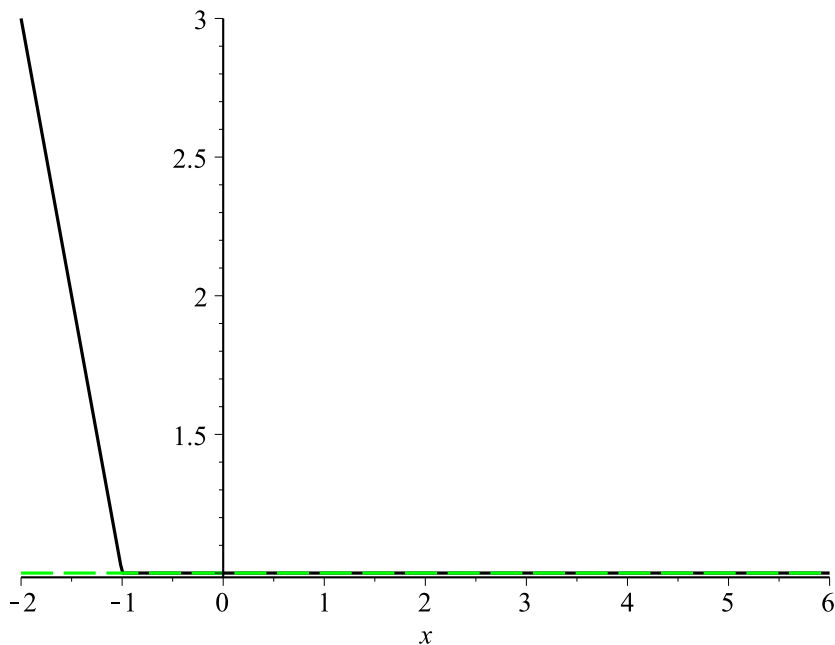
```

$$\left\{ \begin{array}{ll} 1 & x < -1 \\ |1+x| - x & -1 \leq x \text{ and } x < 5 \\ 1 & 5 \leq x \end{array} \right. \quad (12)$$

```

plot( [f(x), g(x)], x=a1..b1, linestyle=[solid,dash], color=[black,green], legend=[f(x),
g(x)]);

```



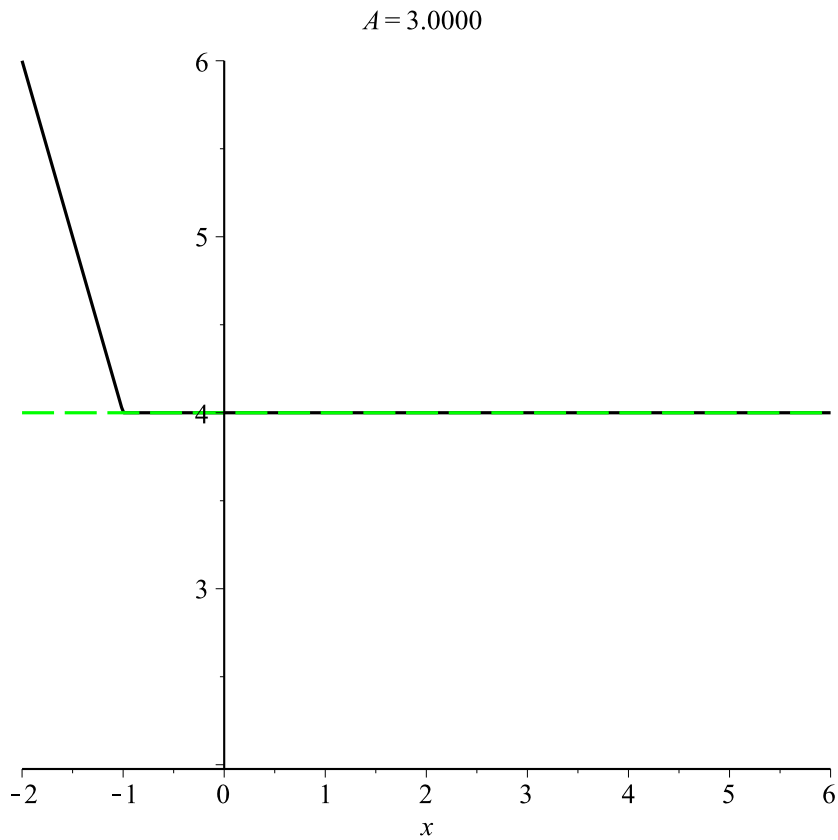
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with(plots) :

```

Loading [plots](#)

```
animate(plot, [[f(x) + A, g(x) + A], x=a1..b1, linestyle=[solid, dash], color=[black, green]], A
= 1..3);
```



```
expr6 := subs( {A=0, C=0}, expr);
```

$$|1 + x| - x^{B+1}$$

(13)

```
expr7 := subs( {A=0, C=0}, expr3);
```

$$\left\{ \begin{array}{ll} \lim_{x \rightarrow B-1} (|1 + x| - x^{B+1}) & x < B-1 \\ |1 + x| - x^{B+1} & B-1 \leq x \text{ and } x < 5 \\ \lim_{x \rightarrow 5} (|1 + x| - x^{B+1}) & 5 \leq x \end{array} \right.$$

(14)

```
b1 := subs( {A=0, C=0}, b);
```

$$6 + B$$

(15)

```
a;f := unapply(expr6, x, B);
```

$$B - 2$$

$$(x, B) \rightarrow |1 + x| - x^{B+1}$$

(16)

```
g := unapply(expr7, x, B);
```

$$(x, B) \rightarrow \text{piecewise}(x < B - 1, |B| - e^{(B + 1) \ln(B - 1)}, B - 1 \leq x \text{ and } x < 5, |1 + x| - x^{B + 1}, 5 \leq x, 6 - 5 \cdot 5^B) \tag{17}$$

```

animate(plot, [[f(x, B), g(x, B)], x = a .. b1, y = -100 ..50, linestyle = [solid, dash], color = [black,
green]], B = -5 ..5);

```

