

## Solution

Laplace Inverse Transform of  $\frac{195}{157.89e^{-0.42x}+1} + \frac{103.09}{102.58e^{-0.48x}+1}$ :

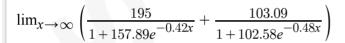
No solution in terms of standard functions

## Steps

$$L^{-1} \left\{ \frac{195}{157.89e^{-0.42x} + 1} + \frac{103.09}{102.58e^{-0.48x} + 1} \right\}$$

 $\lim_{x \to \infty} \left( \frac{195}{1 + 15789e^{-0.42x}} + \frac{103.09}{1 + 10258e^{-0.48x}} \right) = 298.09$ 

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 $\lim_{x \to a} [f(x) \pm g(x)] = \lim_{x \to a} f(x) \pm \lim_{x \to a} g(x)$ 

With the exception of indeterminate form

$$= \lim_{x \to \infty} \left( \frac{195}{1 + 157.89e^{-0.42x}} \right) + \lim_{x \to \infty} \left( \frac{103.09}{1 + 102.58e^{-0.48x}} \right)$$

 $\lim_{x\to\infty} \left( \frac{195}{1+157.89e^{-0.42x}} \right) = 195$ 

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$$\lim_{x\to\infty} \left( \frac{195}{1+157.89e^{-0.42x}} \right)$$

$$\lim_{x \to a} [c \cdot f(x)] = c \cdot \lim_{x \to a} f(x)$$

$$= 195 \cdot \lim_{x \to \infty} \left( \frac{1}{1 + 157.89e^{-0.42x}} \right)$$

$$\lim_{x \to a} \left[ \frac{f(x)}{g(x)} \right] = \frac{\lim_{x \to a} f(x)}{\lim_{x \to a} g(x)}, \quad \lim_{x \to a} g(x) \neq 0$$

With the exception of indeterminate form

$$=195 \cdot \frac{\lim_{x \to \infty} (1)}{\lim_{x \to \infty} (1 + 157.89e^{-0.42x})}$$

$$\lim_{x\to\infty} (1) = 1$$

$$\lim_{x\to\infty} (1)$$

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\lim_{r\to a} c = c
   =1
                                                                                                             Hide Steps
 \lim_{x \to \infty} \left( 1 + 157.89e^{-0.42x} \right) = 1
  \lim_{x\to\infty} \left(1 + 157.89e^{-0.42x}\right)
  \lim_{x \to a} [f(x) \pm g(x)] = \lim_{x \to a} f(x) \pm \lim_{x \to a} g(x)
  With the exception of indeterminate form
  = \lim_{x \to \infty} (1) + \lim_{x \to \infty} (157.89e^{-0.42x})
                                                                                                           Hide Steps
   \lim_{r\to\infty} (1) = 1
    \lim_{r\to\infty} (1)
     \lim_{r\to a} c = c
     =1
                                                                                                           Hide Steps
   \lim_{x \to \infty} \left( 157.89 e^{-0.42x} \right) = 0
     \lim_{x\to\infty} (157.89e^{-0.42x})
     \lim_{x \to a} [c \cdot f(x)] = c \cdot \lim_{x \to a} f(x)
     = 157.89 \cdot \lim_{x \to \infty} \left( e^{-0.42x} \right)
                                                                                                         Show Steps
      Apply the Limit Chain Rule: 0
      = 157.89 \cdot 0
     Simplify
     = 0
   = 1 + 0
                                                                                           This website uses cookies to
  Simplify
                                                                                              ensure you get the best
   =1
                                                                                                      experience.
                                                                                             By using this website, you
=195\cdot\frac{1}{1}
                                                                                            agree to our Cookie Policy.
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Simplify
                                                                                                         Accept
= 195
```

$$\lim_{x \to \infty} \left( \frac{103.09}{1 + 102.58e^{-0.48x}} \right) = 103.09$$

$$\lim_{x \to \infty} \left( \frac{103.09}{1 + 102.58e^{-0.48x}} \right)$$

$$\lim_{x \to a} [c \cdot f(x)] = c \cdot \lim_{x \to a} f(x)$$

$$= 103.09 \cdot \lim_{x \to \infty} \left( \frac{1}{1 + 102.58e^{-0.48x}} \right)$$

$$\lim_{x \to a} \left[ \frac{f(x)}{g(x)} \right] = \frac{\lim_{x \to a} f(x)}{\lim_{x \to a} g(x)}, \quad \lim_{x \to a} g(x) \neq 0$$

With the exception of indeterminate form

$$= 103.09 \cdot \frac{\lim_{x \to \infty} (1)}{\lim_{x \to \infty} (1 + 102.58e^{-0.48x})}$$

$$\lim_{x\to\infty} (1) = 1$$

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$$\lim_{x \to \infty} \left( 1 + 102.58e^{-0.48x} \right) = 1$$

$$=103.09 \cdot \frac{1}{1}$$

Simplify

$$= 103.09$$

$$=195+103.09$$

Simplify

=298.09

Since  $298.09 \neq 0$ 

= No solution in terms of standard functions

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