Problem 1 *Determine if the following function is a Rational Function:*

$$f(x) = -2(x-4)^2 + 2$$

If it is a rational function, enter 1. If it is not a rational function, enter 0. $\boxed{0}$.

Feedback(`attempt`): *A rational function in this case needs a non-constant denominator. Thus something like* $\frac{x+1}{4}$ *would not be considered a rational function (mostly because we can rewrite it as* $\frac{1}{4}x + \frac{1}{4}$*, a polynomial). However, a rational function can have a constant numerator, thus* $\frac{1}{x+1}$ *would be considered a rational function.*

Problem 2 *Determine if the following function is a Rational Function:*

$$f(x) = -3|x+10| + 8$$

If it is a rational function, enter 1. If it is not a rational function, enter 0. $\boxed{0}$.

Feedback(`attempt`): *A rational function in this case needs a non-constant denominator. Thus something like* $\frac{x+1}{4}$ *would not be considered a rational function (mostly because we can rewrite it as* $\frac{1}{4}x + \frac{1}{4}$*, a polynomial). However, a rational function can have a constant numerator, thus* $\frac{1}{x+1}$ *would be considered a rational function.*

Problem 3 *Determine if the following function is a Rational Function:*

$$f(x) = -\log(x+10) + 2$$

If it is a rational function, enter 1. If it is not a rational function, enter 0. $\boxed{0}$.

Feedback(`attempt`): *A rational function in this case needs a non-constant denominator. Thus something like* $\frac{x+1}{4}$ *would not be considered a rational function (mostly because we can rewrite it as* $\frac{1}{4}x + \frac{1}{4}$*, a polynomial). However, a rational function can have a constant numerator, thus* $\frac{1}{x+1}$ *would be considered a rational function.*

Problem 4 *Determine if the following function is a Rational Function:*

$$f(x) = 7(x+9)^2 - 9$$

If it is a rational function, enter 1. If it is not a rational function, enter 0. $\boxed{0}$.

Feedback(`attempt`): *A rational function in this case needs a non-constant denominator. Thus something like* $\frac{x+1}{4}$ *would not be considered a rational function (mostly because we can rewrite it as* $\frac{1}{4}x+\frac{1}{4}$, *a polynomial). However, a rational function can have a constant numerator, thus* $\frac{1}{x+1}$ *would be considered a rational function.*

Problem 5 *Determine if the following function is a Rational Function:*

$$f(x) = -\frac{(x-8)^2+1}{\sqrt{x-1}-7} - \frac{7\,x+48}{10\,\log(x-4)+1} + \frac{6\,e^{(x-1)}}{4\,x+17}$$

If it is a rational function, enter 1. *If it is not a rational function, enter* 0. $\boxed{0}$.

Feedback(`attempt`): *Remember that a rational function needs to be* **a** *(as in singular) ratio of functions. We can combine these fractions into a single fraction by using common denominators and the like, but as given it is the sum of several rational functions, and thus not a rational function itself.*