Problem 1 *Consider the following rational function:*

$$f(x) = \frac{x-5}{x^2-3\,x+2}$$

What is the sum of the x values which have vertical asymptotes? $\boxed{3}$.

Feedback(attempt): *First you need to find all the domain restrictions, i.e. where the denominator is zero. To do this, you may need to factor the denominator to find all the zeros. Remember though, that the values that give vertical asymptotes are the values that remain after you fully simplify the rational function (by canceling factors in the top with factors in the bottom).*

Problem 2 *Consider the following rational function:*

$$f(x) = \frac{x^2+5\,x+4}{x^4+6\,x^3+12\,x^2+10\,x+3}$$

What is the sum of the x values which have vertical asymptotes? $\boxed{-4}$.

Feedback(attempt): *First you need to find all the domain restrictions, i.e. where the denominator is zero. To do this, you may need to factor the denominator to find all the zeros. Remember though, that the values that give vertical asymptotes are the values that remain after you fully simplify the rational function (by canceling factors in the top with factors in the bottom).*

Problem 3 *Consider the following rational function:*

$$f(x) = \frac{x^3-9\,x^2+24\,x-16}{x^2+x-20}$$

What is the sum of the x values which have vertical asymptotes? $\boxed{-5}$.

Feedback(attempt): *First you need to find all the domain restrictions, i.e. where the denominator is zero. To do this, you may need to factor the denominator to find all the zeros. Remember though, that the values that give vertical asymptotes are the values that remain after you fully simplify the rational function (by canceling factors in the top with factors in the bottom).*

Problem 4 *Consider the following rational function:*

$$f(x) = \frac{(x+5)(x-4)(x-6)}{(x+2)^2(x-1)}$$

What is the sum of the x values which have vertical asymptotes? $\boxed{-1}$.

Feedback(attempt): *First you need to find all the domain restrictions, i.e. where the denominator is zero. To do this, you may need to factor the denominator to find all the zeros. Remember though, that the values that give vertical asymptotes are the values that remain after you fully simplify the rational function (by canceling factors in the top with factors in the bottom).*

Problem 5 *Consider the following rational function:*

$$f(x) = \frac{(x-2)^3(x-5)(x-7)}{(x+5)(x+1)^2(x-5)^3}$$

What is the sum of the x values which have vertical asymptotes? $\boxed{-1}$.

Feedback(attempt): *First you need to find all the domain restrictions, i.e. where the denominator is zero. To do this, you may need to factor the denominator to find all the zeros. Remember though, that the values that give vertical asymptotes are the values that remain after you fully simplify the rational function (by canceling factors in the top with factors in the bottom).*

Problem 6 *Consider the following rational function:*

$$f(x) = \frac{(x+8)(x+3)^3(x+2)^3(x-7)^2}{(x+7)(x+3)(x-7)^2(x-8)^2}$$

What is the sum of the x values which have vertical asymptotes? $\boxed{1}$.

Feedback(attempt): *First you need to find all the domain restrictions, i.e. where the denominator is zero. To do this, you may need to factor the denominator to find all the zeros. Remember though, that the values that give vertical asymptotes are the values that remain after you fully simplify the rational function (by canceling factors in the top with factors in the bottom).*
