```
(* Quiz 21 | AP Calculus BC | Shubleka | Commentary *)

(* A Period | Sketching Question *)
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In[20]:=
```
g[x_] := (1 / x^2) - (1 / (x - 2)^2);
```

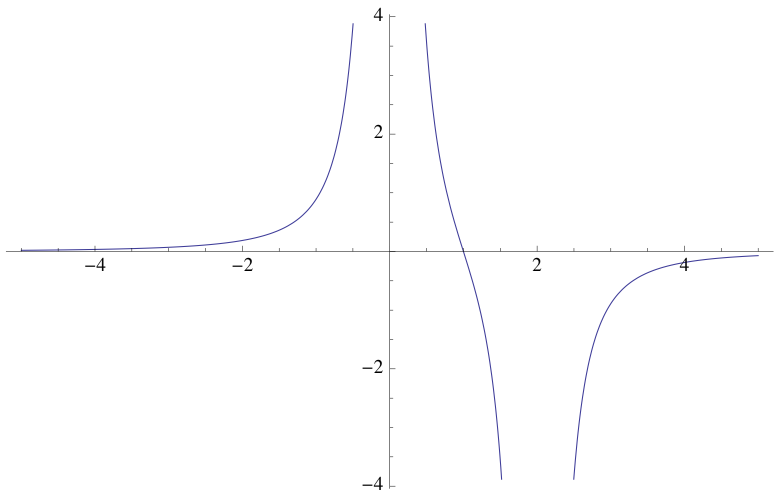
In[21]:=
```
Simplify[g'[x]]
```

Out[21]= $\frac{2}{(-2+x)^3} - \frac{2}{x^3}$

In[22]:=
```
Simplify[g''[x]]
```

Out[22]= $-\frac{6}{(-2+x)^4} + \frac{6}{x^4}$

In[23]:=
```
Plot[g[x], {x, -5, 5}]
```

Out[23]= 

Concave up on: (-infinity, 1)
Concave down on (1, infinity)
Inflection point: (1, 0)
No local extrema!
VA: x=0, x=2; HA: y=0; x-int: (1, 0) ; y-int: none
Symmetry: none
Increasing: (-infinity, 0) and (2, infinity)
Decreasing: (0, 2)

```
(* F Period | Sketching Question *)

f[x_] := x^2 / (x + 8);
```

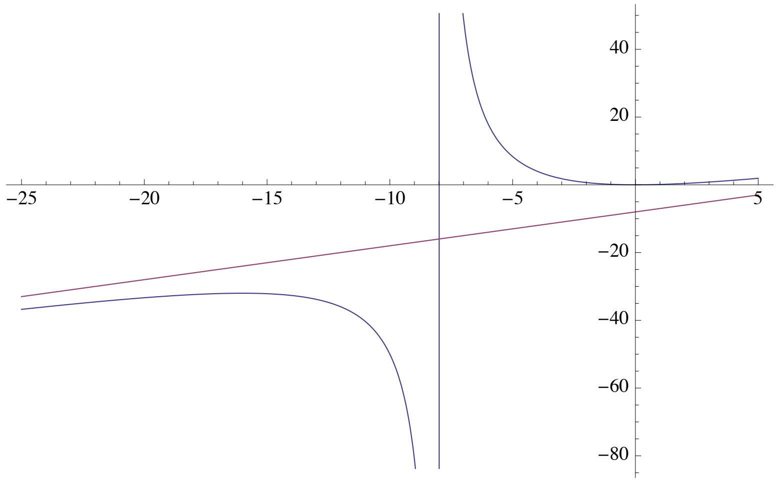
In[3]:=
```
Simplify[f'[x]]
```

Out[3]= $\frac{x\,(16+x)}{(8+x)^2}$

In[4]:= **Simplify[f''[x]]**

Out[4]= $\frac{128}{(8+x)^3}$

In[24]:= **Plot[{f[x], x - 8}, {x, -25, 5}]**
(* In the same window: f(x), f'(x), and the slant y=x-8 *)

Out[24]=


f[-16] (* local minimum *)

Out[18]= - 32

f[0] (* local maximum *)

Out[19]= 0

You needed to include the following information: x-intercepts, y-intercepts, symmetry, vertical asymptotes, horizontal asymptotes (if no HA, check for slant!), tables for f '(x) and f "(x), local extrema, and inflection point. Commenting on these is expected, even if there are none. The graph needed to approach the slant asymptote, not get away from it.As always, justify work.