

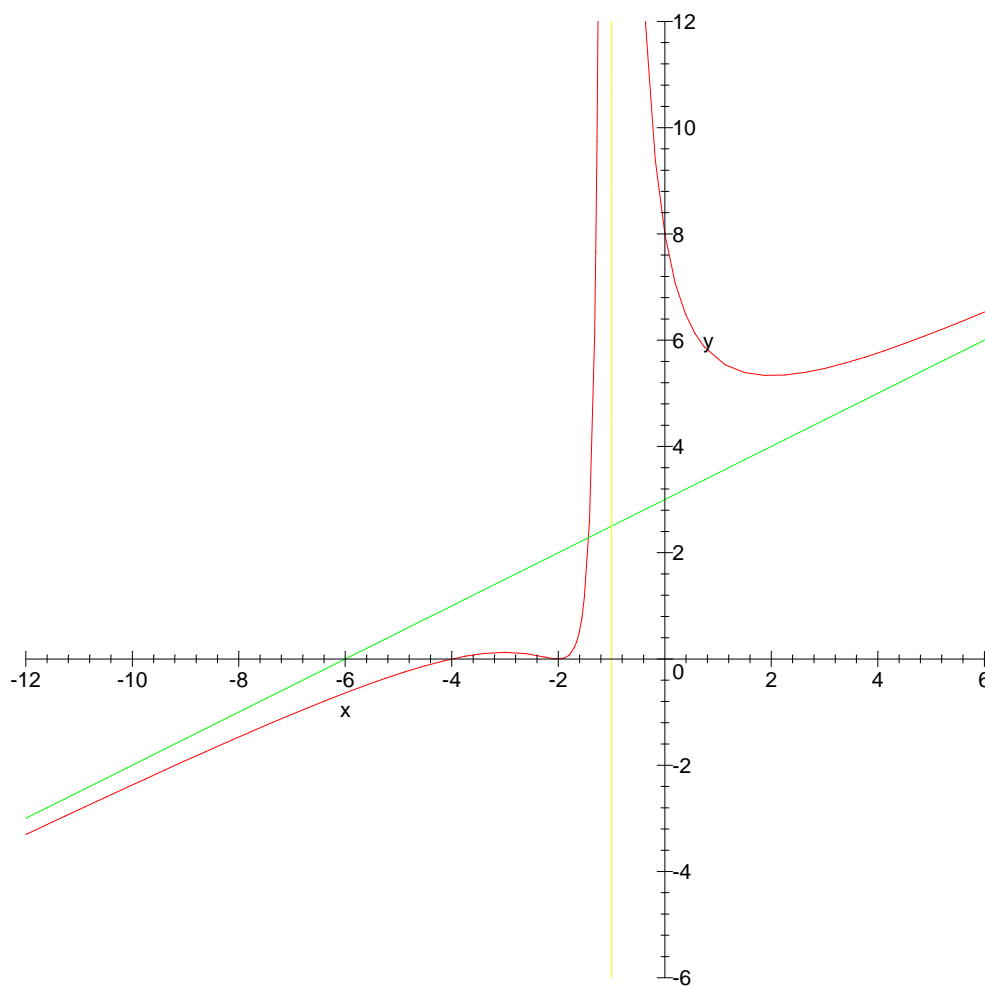
```
STUDENT > h:=x->(x^3+8*x^2+20*x+16)/(2*(x+1)^2);factor(h(x));factor(diff(h(x),x));
```

$$h := x \rightarrow \frac{1}{2} \frac{x^3 + 8x^2 + 20x + 16}{(x+1)^2}$$

$$\frac{1}{2} \frac{(x+4)(x+2)^2}{(x+1)^2}$$

$$\frac{1}{2} \frac{(x-2)(x+3)(x+2)}{(x+1)^3}$$

```
STUDENT > plot([h(x),x/2+3],[[-1,12],[1,-6]],x=-12..6,y=-6..12,thickness=2);
```



```
STUDENT > k(x):=h(x)-(x/2+3);
```

$$k(x) := \frac{1}{2} \frac{x^3 + 8x^2 + 20x + 16}{(x+1)^2} - \frac{1}{2}x - 3$$

```
STUDENT > factor(k(x));
```