6th edition

Webassign:

Question– Finding concavity you need the second derivative.

You are going to have to expand the denominator of the first derivative to find the derivative of the denominator.

Once you have the second derivative: You want the numerator in complete factor form.

Factor the second term completely and then you should see common factors in both terms of the numerator. This should help you to completely factor. Do not expand you might not see how to factor.

Hints 3.3 (textbook and/or Webassign)

21 You can't leave your answer as a complex fraction. In addition, you can't leave it with negative exponents. Reduce to have a simple fraction

#24, # 46 if you reduce first the derivatives are easier.
If you don't, make sure you reduce afterwards.

44. You can treat this as the product of x(e^(-1))^x or as a quotient x/e^x
Try both for practice

56 (&Webassign). $R = pq$ remember that q is not a constant it is a function of p
$R = p\,f(p)$
Take the derivative of this product of two functions.
After you take the derivative then you evaluate it when $p = 140$

60 The question is asking, can you find another function $g(x)$ such that $\frac{d}{dx}g(x) = g(x)$ and $g(0) = 1$ [find another function that has some of the qualities as e^x yet not equal to e^x.]

Hint (given in the book so just use it)

Let $h(x) = \frac{g(x)}{e^x}$ Find $h'(x)$ (Using the quotient rule of derivative)

Then reduce the fraction substituting in $g'(x) = g(x)$ (one of the characteristics we are assuming)

What do you observe?

Remember if a function, $f(x)$, whose has a derivative of zero for all x's , $f'(x) = 0$, the function is a constant function $f(x) = k$.

Find $h(0)$ substituting in $g(0) = 1$ (one of the characteristics we are assuming)

See if you can then make a conclusion.

When writing this up make sure you are explaining your observation and conclusion. Just because I gave a hint here, does not exempt you from writing it on your paper.

Not required but good practice on units are your friends

#59 must decide the relation between $f(v)$ and $g(v)$. Using units will help

$f(v)$ units are $\frac{liters}{Km}$

$g(v)$ units are $\frac{Km}{liters}$

v units are $\frac{Km}{hour}$

So $g(v)=\frac{1}{f(v)}$ then continue