Good afternoon: warm up

Give any intervals where the function is decreasing and concave up
$f(x) = x^3 - 2x^2$

$f'(x) = 3x^2 - 4x \rightarrow x(3x-4) = 0$

$x = 0, \, 4/3$ C.N.

$f''(x) = 6x - 4 = 0$

$x = 2/3$ T.P.

f' neg f'' +s

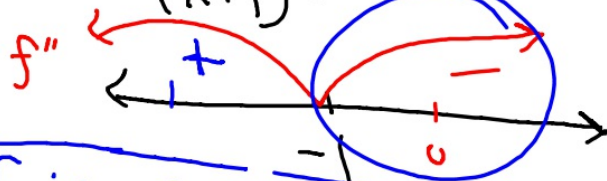from $(2/3, \, 4/3)$

$y = \dfrac{2x}{x+1}$ Find any interval(s) over which the function is concave down.

f'' neg

$y' = \dfrac{2(x+1) - 2x(1)}{(x+1)^2}$

$y' = \dfrac{2x + 2 - 2x}{(x+1)^2}$

$y' = \dfrac{2}{(x+1)^2}$

$y' = 2(x+1)^{-2}$

$y'' = 2 \cdot -2(x+1)^{-3} \cdot 1$

$-4(x+1)^{-3}$

$y'' = \dfrac{-4}{(x+1)^3} = 0$

TP: $x = -1$

f is C.D. over $(-1, \infty)$ b/c f'' negative

p175 evens 37-42 (use calcchat for odds please)

p 192 15-22, 53-54 evens (calcchat for odds)

38. In the interval $(0, 6)$: $c = 2\sqrt{3}$.

40. $c = \sqrt[3]{2}$

42. $f(x) = \dfrac{x + 1}{x}$ is not continuous at $x = 0$. The Mean Value Theorem does not apply.
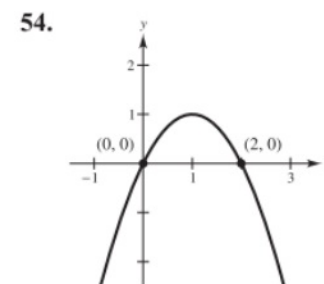
16.
Concave upward: $(-\infty, 2)$

Concave downward: $(2, \infty)$

Point of inflection: $(2, 11)$

18.
Concave downward: $(-\infty, \infty)$

No points of inflection

20.
Concave upward: $\left(-\infty, \dfrac{3}{2}\right)$, $(2, \infty)$

Concave downward: $\left(\dfrac{3}{2}, 2\right)$

Points of inflection: $\left(\dfrac{3}{2}, -\dfrac{1}{16}\right)$, $(2, 0)$

22.
Concave downward: $(-\infty, 9)$

No point of inflection

54.

What's on Thursday's assessment?

New 〔 D-AD10-11-12: Concavity
     〔 D-CD8: Mean Value Theorem
old 〔 D-AD789 from last test
     〔 D-AD5: Implicit Differentiation from last test

Skills tested only once this quarter:
   D-AD2: basic derivatives
   D-AD2b: adv derivatives
   D-AD3: prod/quotient rule
   D-AD17: motion
   D-CD5: horiz/vert tangents
   D-AD0: l'Hopital's Rule

can upgrade to 100 if currently a 96 without hw

grade not good? need to do retake as these won't be on any more tests