

5/7/15 notes

Review for Final Exam (cont.)

Pg. 453

#18.

$$\int_1^2 -2 dx$$

answer:

$$F(x) = -2x$$

$$F(2) = -4$$

$$F(-1) = -2(-1) = +2$$

$$F(2) - F(-1) = -4 - 2 = \underline{-6}$$

$$\#28. \int_1^2 (t^5 - t^3 + 1) dt$$

$$F(x) = \frac{1}{(5+1)} t^{(5+1)} - \frac{1}{(3+1)} t^{(3+1)} + \frac{1}{(0+1)} t^{(0+1)}$$

$$F(x) = \frac{1}{6} t^6 - \frac{1}{4} t^4 + t$$

$$F(2) = \frac{1}{6} (2)^6 - \frac{1}{4} (2)^4 + (2) = \frac{1}{6} (64) - \frac{1}{4} (16) + 2$$

$$F(2) = \frac{64}{6} - \frac{16}{4} + 2 = \frac{32}{3} - 4 + 2 = 10\frac{2}{3} - 2$$

$$\underline{F(2) = 8\frac{2}{3}}$$

$$F(1) = \frac{1}{6} (1)^6 - \frac{1}{4} (1)^4 + 1 = \frac{1}{6} - \frac{1}{4} + 1 = \frac{2}{12} - \frac{3}{12} + \frac{12}{12} = \underline{\frac{11}{12}}$$

$$F(2) - F(1) = 8\frac{2}{3} - \frac{11}{12} = 8\frac{8}{12} - \frac{11}{12} = 7\frac{20}{12} - \frac{11}{12} =$$

$$7\frac{9}{12} = \underline{7\frac{3}{4}}$$

(All those
with blue
eyes to
board)

Pg. 496

$$\#3. \int (x^4 - 2x^3 + \frac{1}{x^2}) dx$$

$$\text{answer: } \int (x^4 - 2x^3 + x^{-2}) dx$$

$$= \frac{1}{5} x^5 - 2 \left(\frac{1}{4}\right) x^4 + \frac{1}{(-2+1)} x^{(-2+1)} + C$$

$$= \boxed{\frac{1}{5} x^5 - \frac{1}{2} x^4 - 1 x^{-1} + C}$$

$$\text{OR } = \boxed{\frac{1}{5} x^5 - \frac{1}{2} x^4 - \frac{1}{x} + C}$$

$$\#5. \int x(2x^2 + x^{1/2}) dx$$

Note

$$\text{answer: } \int (2x^3 + x^{3/2}) dx$$

$$= 2 \left(\frac{1}{(3+1)}\right) x^{(3+1)} + \frac{1}{(\frac{3}{2}+1)} x^{(\frac{3}{2}+1)} + C$$

$$= 2 \left(\frac{1}{4}\right) x^4 + \frac{1}{(\frac{5}{2})} x^{5/2} + C$$

$$= \boxed{\frac{1}{2} x^4 + \frac{2}{5} x^{5/2} + C}$$

All those
who are not going
to see their
mothers this
Sunday (Mothers
Day)
to board

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#22.

$$\int_0^2 (4x^3 - 9x^2 + 2x - 1) dx$$

$$F(x) = 4 \left(\frac{1}{3+1} \right) x^{(3+1)} - 9 \left(\frac{1}{2+1} \right) x^{(2+1)} + 2 \left(\frac{1}{1+1} \right) x^{(1+1)} - 1 \left(\frac{1}{0+1} \right) x^{(0+1)}$$

$$F(x) = 4 \left(\frac{1}{4} \right) x^4 - 9 \left(\frac{1}{3} \right) x^3 + 2 \left(\frac{1}{2} \right) x^2 - 1(1) x^1$$

$$F(x) = x^4 - 3x^3 + x^2 - x$$

$$F(2) = 2^4 - 3(2)^3 + (2)^2 - 2$$

$$= 16 - 3(8) + 4 - 2$$

$$= 16 - 24 + 4 - 2$$

$$F(2) = -6$$

$$F(0) = 0^4 - 3(0)^3 + (0)^2 - (0) = 0$$

$$F(2) - F(0) = -6 - 0 = \boxed{-6}$$

Questions
Last Comments ON

Science/units
Graphs
and Calculus