MATH 252 HW #5: CHAPTER 18

FALL 2008

Write your name and class and clearly separate sections! See the syllabus.
You should photocopy your homework for future reference.

Show work where appropriate, and use "good form and procedure," as in class!
(The solutions manual may have insufficient work.)
This is due when you take Quiz 5 on the last day of class.
Graded out of 10 points.
"*" denotes "See Hint below."
Read some of the Examples in this chapter for additional assistance.

(My notes are also fair game for tests.)

18.1: 5, 7, 9, 11, 15, 17, 19, 22, 24, 30*

Note on 30: Based on our discussion in class, can you see why this makes physical sense?

Look at 32a, 33.

18.2: 3, 5, 7, 9, 13, 15, 17, 19, 24* (just find the mass), 26* (just find the mass)

Look at 23.

Answer to 24: $\frac{1}{6}k\left(17^{3/2}-1\right)$. Hint: Use symmetry.

Answer to 26: $3\pi\delta\sqrt{a^2+b^2}$.

18.3: 5, 11, 13, 15, 17, 24*, 26*, 28*, 30

Answer to 24: $f(x,y,z)=\frac{k}{2}\left(x^2+y^2+z^2\right)+K$.

Hint on 26, 28: Just give short arguments! On 28, assume that the orbit is circular and that Earth is perfectly spherical.

Look at 19, 20, 25, 27.

THERE'S MORE ON THE BACK!!

18.4: 1, 3, 5, 10, 11, 13, 15

18.5: 3, 11*, 13*, 15, 19

Note on 11 and 13: Techniques for evaluating improper integrals should be used here.

Look at 20: The result here is a special case of Gauss's Law, a very important law in electromagnetism. For more info, see pp.1009-1010.

Look at 21.

18.6: 5,
Understand the Example in the Additional ("Extra") Notes.

18.7: 13,
Know the relevant formulas, as well as the comments on conservative vector fields on Notes 18.7.4. (You may skip the comments on simply connected regions.)