Honors Calculus II (Math 119)

Assignments

Spring Semester, 2005

Assignments are listed by the **date due**.

PDF and DVI (requires *TeX*[1] software) versions of this page are available for printing.

Most of these assignments are simply exercises designed to prepare you for the quizzes. There may be occasional written assignments. Items to be submitted as written assignments are so labeled. While you may find it helpful to discuss the normal assignment exercises with others, no collaboration is permitted on written assignments.

Tue., May. 3:
Quiz
Bring review questions.

Mon., May. 2:
Begin reviewing.

Fri., Apr. 29:
Read: § 2 of the notes on the gamma function[2]

Wed., Apr. 27:

595: 2, 5, 9
732: 22, 24, 25
811: 12, 15

Tue., Apr. 26:
Continue reading in § 1 of the notes.

Fri., Apr. 22:
Expect a **quiz**.
Read: § 1 of the notes on the gamma function[3]
Exercises:

732: 24, 25
811: 4, 7, 11

Wed., Apr. 20:
Read: § 12.11
Exercises:

731: 4 – 6, 10, 12, 13, 21
807: 45, 59
811: 2, 3

Mon., Apr. 18:
Read: § 9.2
Exercises:

726: 41, 45, 52, 54, 60
731: 2, 3, 9, 11

Fri., Apr. 15:
Expect a **quiz**.
Exercises:

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[1] URI: http://www.tug.org/
[2] URI: ../../gamma.pdf
[3] URI: ../../gamma.pdf

719: 42, 47
726: 7, 12, 16, 18, 20, 26, 27, 32, 37
Does the tangent line at a point of an ellipse necessarily make equal angles with the lines drawn to the two foci of the ellipse?
Find the center of curvature at the point

$$(x, y) \;=\; (a\cos t, b\sin t)$$

of the ellipse

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} \;=\; 1$$

for given constants $a > b > 0$.

Wed., Apr. 13:
Read: § 11.6
Exercises:

714: 67, 81
719: 41, 55
726: 5, 9, 11, 15, 17, 19

Mon., Apr. 11:
Read: § 11.5
Exercises:

702: 39, 43, 48, 53
713: 19, 20, 25, 26, 34, 37, 56
719: 46

Fri., Apr. 8:
Expect a **quiz**.
Read: § 11.4
Exercises:

784: 28, 37, 38
790: 35
795: 25
694: 39, 43
702: 38, 42
713: 15, 16, 21, 55
719: 3, 37, 45

Wed., Apr. 6:
Read: § 11.3
Exercises:

784: 32, 35
789: 28 – 31
795: 24, 36
692: 19 – 23
702: 33, 37, 41
713: 3, 4, 13, 14

Mon., Apr. 4:
Exercises:

784: 21 – 24
789: 22, 23, 25, 27
795: 16, 20
692: 8, 10, 11, 24
702: 2 – 4, 7

Fri., Apr. 1:
Expect a **quiz**.
Read: § 11.2
Exercises:

784: 17 – 20
789: 15 – 18
795: 10, 11, 13
692: 1, 2, 5

Wed., Mar. 30:
Read: § 11.1
Exercises:

782: 33, 34, 35
784: 13 – 16
789: 11 – 14
795: 4, 9

Tues., Mar. 29:
Read: § 12.9
Exercises:

For the parabola $y^2 = 4ax$ with a given constant $a > 0$, which has focus F at $(a, 0)$, show that the angle between the line segment PF from any point P on the parabola to F and the tangent to the parabola at P is equal to the angle at P between the tangent and a horizontal line.

Fri., Mar. 18:
Read: § 12.8
Exercises:

776: 36
781: 25, 27, 28, 32
784: 7 – 12
789: 3 – 10

Wed., Mar. 16:
Midterm Test in class

Mon., Mar. 14:
Review Session: bring questions

Fri., Mar. 11:
Expect a **quiz.**
Exercises:

775: 23, 24, 27, 31, 33
781: 17, 18, 29, 31
784: 1 – 6

Wed., Mar. 9:
Read: § 12.7
Exercises:

766: 27, 29, 30
770: 30, 33
775: 13 – 18
781: 7 – 12

Mon., Mar. 7:
Expect a **quiz.**
Read: § 12.6
Exercises:

765: 16, 18, 19, 22, 24
770: 19, 24, 25, 29, 32
775: 7 – 10, 12
781: 1 – 6

Fri., Mar. 4:
Read: § 12.5
Exercises:

540: 55, 56
574: 49, 55, 57, 60
756: 46, 53
765: 21
770: 11 – 15
775: 2 – 6

Wed., Mar. 2:
Read: § 12.4
Exercises:

540: 43, 45, 50
574: 24, 26, 28, 37
756: 34, 38, 49, 50
765: 11 – 15
770: 3 – 9

Mon., Feb. 28:
Expect a **quiz**.
Read: § 12.3
Exercises:

540: 22, 28, 37
573: 2, 11, 15, 18, 21, 25
756: 26, 31, 33, 37
765: 3, 5, 6

Fri., Feb. 25:
Read: § 8.8
Exercises:

530: 27, 29
540: 29, 30, 38, 39
573: 1, 3, 5, 6, 8, 9
756: 18, 23, 24, 27, 30

Wed., Feb. 23:
Read: § 12.2
Exercises:

530: 31 – 33
540: 7, 9, 25
747: 18, 20, 22, 24, 26, 28, 32
756: 9, 11, 13, 19, 21, 29, 41, 42

Mon/Tues., Feb. 21/22:
University Recess: no classes

Fri., Feb. 18:
Expect a **quiz**.
Read: § 8.4
Exercises:

524: 33, 46, 53, 54
530: 13, 17, 20, 22
540: 1 – 5
746: 17, 19, 23, 31

Wed., Feb. 16:
Read: § 12.1
Exercises:

524: 17, 23, 24
530: 1, 3, 6
746: 4, 6, 9 – 11
806: 55, 60

Mon., Feb. 14:
Read: § 8.3
Exercises:

502: 87, 88, 90
516: 46, 47, 64
524: 1, 4, 10
806: 40, 49
Let f be the function defined by

$$f(x) \;=\; |x|^3 \quad .$$

Find as many terms as possible of the Taylor series of f at $x = 0$.

Fri., Feb. 11:
Expect a **quiz.**
Read: § 8.2
Exercises:

502: 51, 54, 57, 83, 91
516: 42, 43, 45
806: 11, 12, 14, 31
Let f be the function defined by

$$f(x) \;=\; \begin{cases} e^{-1/x^2} & \text{if } x \neq 0\,, \\ 0 & \text{if } x = 0 \quad . \end{cases}$$

Find the Taylor series of f at $x = 0$.

Wed., Feb. 9:
Read: § 12.10
Exercises:

492: 62, 63
501: 36, 38, 44
516: 14, 21, 33, 41
806: 2, 5

Mon., Feb. 7:
Read: § 8.1
Exercises:

484: 50
492: 49, 55, 58
501: 22, 32
516: 1, 2, 13, 15

Fri., Feb. 4:
Expect a **quiz**.
Read: § 7.7
Exercises:

484: 64 – 66
491: 25, 41, 45, 53
501: 21, 27
What fact from school geometry may be used to argue that a transformation of the plane which preserves distances must necessarily also preserve point differences?

Wed., Feb. 2:
Read: § 7.6
Exercises:

405: 13, 24
484: 44, 48, 63
491: 11, 12, 35
The piece of curve given by

$$\sqrt{x} + \sqrt{y} \;=\; 1$$

for $x, y \geq 0$ is part of a parabola. Find the focus of that parabola.

Mon., Jan. 31:
Read: § 7.5
Exercises:

397: 44
405: 20
484: 19–21, 26, 31
Find the area of the region in the first quadrant bounded by the coordinate axes and the curve

$$\sqrt{x} + \sqrt{y} \;=\; 1 \quad .$$

Fri., Jan. 28:
Expect a **quiz**.
Read: § 6.5
Exercises:

391: 27, 28
396: 25, 29
405: 3, 5, 7
Find the dimensions of the largest rectangle that can be inscribed in a semicircle of given radius $a > 0$.

Wed., Jan. 26:
Read: § 6.3
Exercises:

380: 43, 45
391: 23–26, 43
396: 13, 17, 45

Mon., Jan. 24:
Review: §§ 6.1–6.2
Exercises:

380: 4, 17, 24, 28, 30, 41
391: 14, 19–22

Fri., Jan. 21:
University Recess. No class.

Wed., Jan. 19:
First Meeting. No assignment.

UP | TOP | Department