

# PRECALCULUS

## Friday, Apr. 29

Handout—Limits in Graphical Form

Sec. 17-1 pp. 920-921. 26, 29, 33-35, 47, a, b

Sec. 17-2 pp. 928-929

Definition of the derivative: 24, a, b

Power Rule: 29, 39, c, d

$$(a) \lim_{x \rightarrow 25} \frac{x-25}{\sqrt{x}-5} \quad (b) \lim_{x \rightarrow 3} \frac{\sqrt{x+1}-2}{x-3}$$

$$(a) f(x) = 6x^3 - 2x + 5 \quad (b) f(x) = \frac{1}{x^2}$$

$$(c) f(x) = 5x^{77} - x^{-5} + \frac{3}{x} - \frac{1}{2x^4}$$

$$(d) f(x) = \sqrt[4]{x^7} - \sqrt[6]{x}$$

## Tuesday, May 3

Sec. 17-2 pp. 928-929

15, 16, 17, 18, 19, 32, 34, 36, 38, 41, a-e

$$(a) f(x) = (x^5 - 3x^4 + 4) \left( \frac{x^2+1}{x^3-2x} \right) \quad (b) f(x) = [8x^{-5} + (x^2 - 3x + 4)^7]^3$$

$$(c) f(x) = \frac{(x^4+5x)(3x^7-2x^2)}{6x^9+2x^3} \quad (d) f(x) = \left( \frac{8x-5}{3x^2+2x^9} \right)^{10} \quad (e) f(x) = (x^2 + 2)^4(3x^6 - 2x)^7$$

## Thursday, May 5

Sec. 17-4 pp. 942-943

3, 7, 9, 11, 14, 23, 25, a-e

$$(a) \int (2x^3 - 1)(x^2 + 5) dx \quad (b) \int (4x^2 + 3)^2 dx$$

$$(c) \int \left( \frac{3}{x^2} + \frac{5}{x^4} \right) dx \quad (d) \int \left( \frac{t^5+2t^2-3}{\sqrt[3]{t}} \right) dt \quad (e) \int \left( \frac{3x^3-6x^2+5}{x^2} \right) dx$$

Sec. 17-5 pp. 948-949

11, 13, 25, 31, f, g

$$(f) \int_{-1}^2 \frac{3x+2x^4}{x^3} dx. \quad (g) \int_4^9 \frac{25x^3-1}{\sqrt{x}} dx$$

*Math Matters Due*

## Monday, May 9

Sec. 17-5 pp. 948-949

8, 9, 17, 21

Intro to Calculus Review

## Wednesday, May 11

# Intro to Calc Test

*Portfolios Due Thursday*

## FRACTALS

**Friday, May 13**—Intro to Fractals Part 1; Scale Investigation; Homework: Iteration #1

**Tuesday, May 17**—Intro to Fractals Part 2, Finish Scale Investigation; Homework: Fractal Quiz

**Thursday, May 19**—Fractal Quiz & Journal Due

Sec. 17-1 pp. 920-921

26. 2 a) 10  
 34. 2 b) 114  
 36. 0

Sec. 17-2 pp. 928-929

24.  $4a^3 - 4a$   
 28.  $4x^3 - 6x$   
 a)  $18a^2 - 2$   
 b)  $\frac{2}{a^3}$   
 c)  $385x^{76} + \frac{5}{x^6} - \frac{3}{x^2} + \frac{2}{x^5}$   
 d)  $\frac{7}{4}x^{314} - \frac{1}{6x^{516}}$   
 e)  $\frac{3}{2}x^4 + \frac{16}{7}x^{-9/7} + 5$

15.  $x^2 \cdot -3(x^2+1)^{-4} \cdot 2x + (x^2+1)^{-3} \cdot 2x$   
 16.  $\frac{1}{2}(4x^2-1)^{-1/2} \cdot 8x$   
 17.  $\frac{(4x-1) \cdot 2 - (2x+3) \cdot 4}{(4x-1)^2}$   
 18.  $\frac{(x^4+1) \cdot 3x^2 - (x^3-1) \cdot 4x^3}{(x^4+1)^2}$   
 19.  $-3 \rightarrow \frac{(x+2) \cdot 0 - 6 \cdot 1}{(x+2)^2}$

- a)  $(x^5 - 3x^4 + 4) \cdot \left[ \frac{(x^3 - 2x)(2x) - (x^2 + 1)(3x^2 - 2)}{(x^3 - 2x)^2} \right] + \left( \frac{x^2 + 1}{x^3 - 2x} \right) \cdot (5x^4 - 12x^3)$   
 b)  $3 \left[ 8x^{-5} + (x^2 - 3x + 4)^7 \right]^2 \cdot \left[ -40x^{-6} + 7(x^2 - 3x + 4)^6 \cdot (2x - 3) \right]$   
 c)  $(6x^9 + 2x^3) \left[ (x^4 + 5x)(21x^6 - 4x) + (3x^7 - 2x^2)(4x^3 + 5) \right] - (x^4 + 5x)(3x^7 - 2x^2) \cdot (54x^8 + 6x^2)$   
 $(6x^9 + 2x^3)^2$   
 d)  $10 \left( \frac{8x-5}{3x^2+2x^9} \right)^9 \cdot \left[ \frac{(3x^2+2x^9) \cdot 8 - (8x-5)(6x+18x^6)}{(3x^2+2x^9)^2} \right]$   
 e)  $(x^2+2)^4 \cdot 7(3x^6-2x)^6 \cdot (18x^5-2) + (3x^6-2x)^7 \cdot 4(x^2+2)^3 \cdot 2x$

Sec. 17-4 pp. 942-943

14.  $\frac{\pi x^2}{2} + \frac{2x^3}{3} + C$   
 a)  $\frac{x^6}{3} + \frac{5x^4}{2} - \frac{x^3}{3} - 5x + C$   
 b)  $\frac{16x^5}{5} + 8x^3 + 9x + C$   
 c)  $-\frac{3}{x} - \frac{5}{3x^3} + C$   
 d)  $\frac{3}{17}t^{17/3} + \frac{3}{4}t^{8/3} - \frac{9t^{2/3}}{2} + C$   
 e)  $\frac{3}{2}x^2 - 6x - \frac{5}{x} + C$

Sec. 17-5 pp. 948-949

~~e)  $\frac{3}{2}$~~  f)  $\frac{102936}{7}$  8. 18 units<sup>2</sup>

32.  $4(x^3 - 2x + 1)^3 \cdot (3x^2 - 2)$   
 34.  $x^2 \cdot -1(x+1)^{-2} \cdot 1 + (x+1)^{-1} \cdot 2x$   
 36.  $\frac{(x^2+4)(1) - (x+1) \cdot 2x}{(x^2-4)^2}$   
 38.  $x \cdot \frac{1}{2}(1-x^3)^{-1/2} \cdot -3x^2 + (1-x^3)^{1/2} \cdot 1$   
 41.  $(1 + \frac{1}{x}) \cdot x^{-2} + (2 - \frac{1}{x}) \cdot -1x^{-2}$