Math 242 Lab 6
Integration by Partial Fractions

Li-An Chen
Department of Mathematical Sciences, University of Delaware
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Lab Assignment

- Complete ALL Lab Assignment Questions (with codes, computation results, and essay questions in page 3~4)
- Submit “lastnameLab06.nb” and “lastnameLab06.pdf” **(File->Save As→pdf)** on Canvas
- Deadline: **Tomorrow 11:59pm**
- Correct computation results (without codes) are available on Canvas→Files→Lab→Lab_06_Integration by Partial Fractions→lab06_examples_hints

Apart

- Apart[rational function]

  Express the given rational function as a sum of partial fractions.

- Example

  p[x_] = Apart[(x + 5)/(x^2 + x – 2)]

  output: $\frac{2}{-1+x} - \frac{1}{2+x}$

Solve

- Solve[equation , variable]
- Solve[{equation1, equation2,...} , {variable1,variable2,...}]
- Solve[{
- a + b == 0,
- c - b == 1,
- 8 a + 4 b - c + d == 10,
- -4 b + 4 c - d + e == 3,
- 16 a - 4 c - e == 36},
- {a, b, c, d, e}]
- **Note:** The concept “equal” in the equations must use double equal signs.

  The single equal sign is for “assign”.
- **Note:** This code is only for reference. We don’t need this “Solve” for assignemnt questions.

Wrong

Correct

```
q[x_] = Apart[x^4 +3x^2+1/x^5+5x^3+5x]
Integrate[q[x], x]
```

$$\int \frac{x^4+3x^2+1}{x^5+5x^3+5x}\,dx$$

This is

$$\int x^4+3x^2+\frac{1}{x^5}+5x^3+5x\,dx$$

```
q[x_] = Apart[(x^4+3x^2+1)/(x^5+5x^3+5x)]
Integrate[q[x], x]
```

$$\int \frac{1}{x^3-1}\,dx$$

```
q[x_] = Apart[1/x^3-1]
Integrate[q[x], x]
```

This is

$$\int \frac{1}{x^3}-1\,dx$$

```
q[x_] = Apart[1/(x^3-1)]
Integrate[q[x], x]
```