Exercise 2.6.5

Compute S(f, g) using the lex order.

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   SageMath version 9.2, Release Date: 2020-10-24

>>> var('x,y,z,w')
   (x, y, z, w)
>>> load("~/Desktop/IVA/buch.sage")
>>>
>>> #(a)
>>> f = 4*x^2*z - 7*y^2; g = x*y*z^2 + 3*x*z^4;
>>> Spoly(f, g, 0) # 0 for lex order
```

$$-12\ x^2\,z^4 - 7\ y^3\,z$$

```
>>>
>>> #(b)
>>> f = x^4*y - z^2; g = 3*x*z^2 - y;
>>> Spoly(f, g, 0)
```

$$x^3\,y^2 - 3\ z^4$$

```
>>>
>>> #(c) - use a fourth variable w in place of i
>>> f = x^7*y^2*z + 2*w*x*y*z; g = 2*x^7*y^2*z + 4;
>>> Spoly(f, g, 0)
```

$$2\ w\,x\,y\,z - 2$$

```
>>>
>>> #(d)
>>> f = x*y + z^3; g = z^2 - 3*z;
>>> Spoly(f, g, 0)
```

$$z^5 + 3\ x\,y\,z$$

```
>>>
```