$$7xy^2 + xy \tag{1}$$

$$3xy^2 + xy \tag{2}$$

$$3xy^2 + \frac{7}{2} \tag{3}$$

$$0 \tag{4}$$

$$21x^2y^4 + 3x^2y^3 + \frac{49}{2}xy^2 + \frac{7}{2}xy \tag{5}$$

$$4x_0x_1^2x_2^7x_3^3x_4 + 3x_0x_1^2x_2^3x_3^4x_4^5 + x_0x_1 \tag{6}$$

Lex (PlainMonomial [3,2,0])

$$2x + 2 \tag{7}$$

$$(-1)x + (-1) \tag{8}$$

$$x + 1 \tag{9}$$

$$0 \tag{10}$$

1. Start: calculates $x^2 + 2x + 1 \div$
   - $x + 1$,

   .
2. Division: $x + 1$ divides stock. stock is $x + 1$.
3. Division: $x + 1$ divides stock. stock is 0 .
4. Completed: quotients are
   - $x + 1$,

   . remainder is 0. ■

$$xy^2 + 1 \tag{11}$$

$$xy + 1 \tag{12}$$

$$y + 1 \tag{13}$$

Lex (PlainMonomial [0,1])Lex (PlainMonomial [0,1])True

$$2 \tag{14}$$

$$1$$

1. Start: calculates $xy^2 + 1\div$
   - $xy + 1$,
   - $y + 1$,

   .
2. Division: $xy + 1$ divides stock. stock is $(-1)y + 1$.
3. Division: $y + 1$ divides stock. stock is 2 .
4. Remainder: 2 moved to remainder.
5. Completed: quotients are
   - y,
   - (-1),

   . remainder is 2. ■

1. Start: calculates $x^2y + xy^2 + y^2 \div$
   - $xy + (-1)$,
   - $y^2 + (-1)$,

   .
2. Division: $xy + (-1)$ divides stock. stock is $xy^2 + x + y^2$.
3. Division: $xy + (-1)$ divides stock. stock is $x + y^2 + y$.
4. Remainder: x moved to remainder.
5. Division: $y^2 + (-1)$ divides stock. stock is $y + 1$.
6. Remainder: y moved to remainder.
7. Remainder: 1 moved to remainder.
8. Completed: quotients are
   - $x + y$,
   - 1,

   . remainder is $x + y + 1$. ■

1. Start: calculates $x^2y + xy^2 + y^2 \div$
   - $y^2 + (-1)$,
   - $xy + (-1)$,

   .
2. Division: $xy + (-1)$ divides stock. stock is $xy^2 + x + y^2$.
3. Division: $y^2 + (-1)$ divides stock. stock is $2x + y^2$.
4. Remainder: $2x$ moved to remainder.
5. Division: $y^2 + (-1)$ divides stock. stock is 1 .
6. Remainder: 1 moved to remainder.
7. Completed: quotients are
   - $x + 1$,
   - x,

   . remainder is $2x + 1$. ■

1. Start: calculates $x^2 + 2x + 1 \div$
   - $x + 1$,

   .
2. Division: $x + 1$ divides stock. stock is $x + 1$.
3. Division: $x + 1$ divides stock. stock is 0 .
4. Completed: quotients are
   - $x + 1$,

   . remainder is 0. ■