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Comp Sci 359
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PRELIM 3

Problem 1
```
Add(Add(Multiply(Number 6.0,Power(Variable "x",Number 2.0)),Variable "x"),Number 3.0);;
```

Problem 2
$$\frac{x - 6}{y - 5}$$

Problem 3
    a. $24x^2 + 6x$
    b. $2x \sec^2(x)$

Problem 4
```
let rec repLetter l n =
    match n with
    |0 -> ""
    |_ -> l + (repLetter l (n-1))

let abString a b =
    (repLetter "a" a) + (repLetter "b" b)
```

Problem 5
```
let rec repeat x n =
    match n with
    |0 -> []
    |_ -> x::(repeat x (n-1))

let rec replicateElements li n =
    match li with
    |[] -> []
    |h::t  -> (repeat h n) @ (replicateElements t n)
```

Problem 6
```
let rec removeKthElement li (k:int) =
    match li, k with
    |[one], 1 -> []
    |h::t, 1 -> t
    |h::t, _ -> h::(removeKthElement t (k-1))
```

Problem 7
```
let createListRange lo hi step =
    [lo..step..hi]
```

Problem 8

a. $x \to 3x^3 + 7$
b. $y \to 3z(2x)$

Problem 9

$x \to y \to \sqrt[x]{y}$