PWP POST LAB 17

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1.

```python
import sympy as sp
# Define symbols
n, z, w = sp.symbols('n z w')
# Sequence: x[n] = 3^n u[n]
x1 = 3**n
# Z-transform
X1 = sp.summation(x1 * z**(-n), (n, 0, sp.oo))
X1 = sp.simplify(X1)
print("Z-transform of x[n] = 3^n u[n]:")
sp.pprint(X1, use_unicode=True)
```

2.

```python
import sympy as sp
# Define symbols
n, z, w = sp.symbols('n z w')
# Sequence: x[n] = cos(w*n) u[n]
x2 = sp.cos(w*n)
# Z-transform: sum from n=0 to infinity
X2 = sp.summation(x2 * z**(-n), (n, 0, sp.oo))
X2 = sp.simplify(X2)
print("\nZ-transform of x[n] = cos(w*n) u[n]:")
sp.pprint(X2, use_unicode=True)
```