

## FINITE DIFFERENCES

Prove that

$$1 \times 2 + 2 \times 3 + 3 \times 4 + \dots (n-1) \times n = \frac{1}{3}(n-1) \times n \times (n+1)$$

(field goal). Generalize to

$$1 \times 2 \times 3 + 2 \times 3 \times 4 + \dots (n-2) \times (n-1) \times n$$

for beyond the arc.