

*AAT

Name: Kelly

Chapter 10: Arithmetic Sequences and Series - Application (IC)

Date: _____

Period: _____

Your parents begin your weekly allowance at \$3.00 the first week of the year. They agree to increase your allowance by \$1.00 every week for the remainder of the year.

1. Write a recursive formula to compute your allowance for each week.

$$a_{n+1} = a_n + 1$$

2. Write an explicit formula to compute your allowance for each week.

$$a_n = a_1 + (n-1)d$$
$$= 3 + (n-1)1 ; a_n = n + 2$$

3. Compute your allowance during the:

a. 6th week of the year.

$$a_6 = 6 + 2 = \$8$$

b. 27th week of the year.

$$a_{27} = 27 + 2 = \$29$$

c. 33rd week of the year.

$$a_{33} = 33 + 2 = \$35$$

4. Compute the total allowance you received during the year up to and including the:

a. 19th week of the year.

$$S_{19} = \frac{19}{2}(3 + 21) = \$228$$

b. 41st week of the year.

$$S_{41} = \frac{41}{2}(3 + 43) = \$943$$

c. 52nd week of the year.

$$S_{52} = \frac{52}{2}(3 + 54) = \$1,482$$