1. Find the sum of the first 30 terms of this series:

21, 17, 13, 9, ...

2. Find the sum of the terms of this series:

19, 33, 47, 61, ..., 285

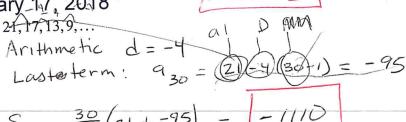
4. Solve each equation.

a) 
$$\sqrt{x+39} + 3 = x$$

b)  $\log_7 x - \log_7 (x - 5) = 2$ 

- 5. An object hangs from a spring. The formula l = 30 + 2w relates the length l, in centimeters, of the spring to the weight, w, in newtons, of the object. Which of the following describes the meaning of the 2 in this context?
- A. The length, in cm, of the spring with no weight attached.
- B. The weight, in newtons, of an object that will stretch the spring 30 cm
- C. The increase in the weight, in newtons, of the object for each one-cm increase in the length of the spring.
- D. The increase in the length, in cm, of the spring for each one-newton increase in the weight of the object.

1. Find the sum of the first 30 terms of this series:



$$S_{30} = \frac{30}{2}(21 + -95) = -1110$$

2. Find the sum of the terms of this series:

the terms of this series: 19,33,47,61,...,285

Arithmetic 
$$d = 14$$

# of terms  $\rightarrow a_n = 19 + 14 (n-1)$ 
 $285 = 19 + 14 (n-1)$ 
 $285 = 19 + 14 (n-1)$ 
 $266 = 14 (n-1)$ 
 $19 = n-1$ 
 $19 = 20 \text{ terms}$ 

4. Solve each equation.

a) 
$$\sqrt{x+39} + 3 = x$$
  
 $-3$   $-3$   
 $(\sqrt{x+39})^2 = (x-3)^2$   
 $x+39 = x^2 - 6x + 9$   
 $0 = x^2 - 7x - 30$   
 $0 = (x-10)(x+3)$   
 $x = -310$ 

b) 
$$\log_{7}x - \log_{7}(x-5) = 2$$

$$\log_{7}(\frac{x}{x-5}) = 2$$

$$7^{2} = \frac{x}{x-5}$$

$$49 = \frac{x}{x-5}$$

$$49(x-5) = x$$

$$49x - 245 = x$$

$$48x = 245$$

- 5. An object hangs from a spring. The formula l = 30 + 2w relates the length l, in centimeters, of the spring to the weight, w, in newtons, of the object. Which of the following describes the meaning of the 2 in this context?
- A. The length, in cm, of the spring with no weight attached.
- B. The weight, in newtons, of an object that will stretch the spring 30 cm
- C. The increase in the weight, in newtons, of the object for each one-cm increase in the length of the spring. D.) The increase in the length, in cm, of the spring for each one-newton increase in the weight of the object.