A: Representing Patterns Continued

Examples:

1. A school pays $2000 for popcorn machine. It costs an additional $10 to use the machine every hour.

a) Copy and Complete the table of values.

# of Hours	Cost ($)
0	2000
2	2020
4	
6	
12	
	2300

# of hours	Cost ($)
0	2000
2	2020
4	2040
6	2060
12	2120
30	2300

Develop an equation to determine the cost to use the machine.

C = cost
h = # of hours.

$10 per hour → $10h
* fixed cost of $2000
put in form $y = \_\_\_ x \pm \_\_\_$

$$C = 10h + 2000$$

c) What is the cost to use the machine for $3\frac{1}{2}$ hours?

$h = 3.5$

$C = 10h + 2000$
$= 10(3.5) + 2000$
$= 35 + 2000$
$= \$2035$

It would cost $2035.

d) If the school had a budget of $3012, how many hours to the nearest hour can the machine be used?

$C = 3012$

$C = 10h + 2000$

$3012 = 10h + 2000$

$-2000 \quad -2000$

$\frac{1012}{10} = \frac{10h}{10}$

$101.2 = h$

$101 = h$ The machine can be used for 101 h.

2. Find the pattern that expresses all the numbers that are 6 less than a multiple of 4. Write a Linear Equation.

a) What is the 84th number?

x - # of term

y - value of term

$y = 4x - 6$

$y = 4(84) - 6$

$y = 336 - 6$

$y = 330$

b) Is 44794 six less than a multiple of 4?

$y = 44794$

$y = 4x - 6$

$44794 = 4x - 6$

$+6 \quad +6$

$44800 = 4x$

$\frac{44800}{4} = \frac{4x}{4}$

$11200 = x$

44794 is the 11200th term.

Assignment Pg. 218 # 11-15, [redacted]

[redacted]