

- 1) For each of the following charts,
  - i) Write the relations as an algebraic expression
  - ii) Describe the relation in words

a) 

Term Number	1	2	3	4	5	6
Term	7	9	11	13	15	17

As term # increases by 1, term increases by 2.  $2n + 5$   
 check  $2(1) = 2$  Add 5  $= 7$  Term = 7

- 2) The local paper is organizing a Halloween supper. The cost rent a hall is \$80 The cost of food is \$10 for each person  $10n + 80$ 
  - a. Complete a chart that relates the total cost to the number people.

#of people	1	2	3	4	5	6
Total Cost	90	100	110	120	130	140

$n=1$   $10(1) + 80 = 10 + 80 = 90$   
 $n=2$   $10(2) + 80 = 20 + 80 = 100$   
 $n=3$   $10(3) + 80 = 30 + 80 = 110$

- b. Write the relation of people to total cost as an algebraic expression using "p".

$C = 10p + 80$

- c. How much would it cost if 40 people attend the supper? (SHOW YOUR WORK)

$10p + 80$   
 $10(40) + 80$   
 $400 + 80$   
 $480$

The total cost for 40 people is \$480.

- d. If the cost of food doubles what would be the new expression?

$20p + 80$       Original  $10p + 80$   
 (Double)      (food)      (hall)

- 3) Evaluate each of the following: (Show work)

a)  $4x + 10$  if  $x = 6$       b)  $2n - 3$  if  $n = 10$

$4(6) + 10 = 24 + 10 = 34$   
 $2(10) - 3 = 20 - 3 = 17$

- 4) Simplify THEN Evaluate

a)  $3t + 7m + 5t - 2m + 10$  ,  $t = 2$  and  $m = 7$

$5t + 3t + 7m - 2m + 10$   
 $8t + 5m + 10$   
 $8(2) + 5(7) + 10 = 16 + 35 + 10 = 61$

- 5) Write an algebraic expression for the following. (Remember to define you variable.)

let "n" represent a number

- a) a product of 7 and a number.

$7n$

- b) a number reduced by 5

$n - 5$

- c) a number subtracted from 11

$11 - n$

1. Copy and complete each table.

Explain how the Output number is related to the Input number.

a)

Input	Output
$x$	$2x$
1	2
2	4
3	6
4	8
5	10

$2(x)$   
 $2 = 2(1)$   
 $4 = 2(2)$   
 $6 = 2(3)$

b)

Input	Output
$m$	$10 - m$
1	9
2	8
3	7
4	6
5	5

$10 - (1)$   
 $10 - 2$   
 $10 - 3$

c)

Input	Output
$p$	$3p + 5$
1	8
2	11
3	14
4	17
5	20

$3p + 5$   
 $p = 1$   
 $3(1) + 5$   
 $3 + 5$   
 $8$   
 $p = 2$   
 $3(2) + 5$   
 $6 + 5$   
 $11$   
 $p = 3$   
 $3(3) + 5$   
 $9 + 5$   
 $14$

outputs number is double the input number

IF you add the output and input you get 10

The output is 3 times the input plus 5

2. Use algebra. Write a relation for each Input/Output table.

a)

Input	Output
$n$	
1	7
2	14
3	21
4	28

$7n$   
 $7n$   
 $7(1) = 7$

b)

Input	Output
$n$	
1	4
2	7
3	10
4	13

$3n + 1$   
 $3(1) = 4$   
 $3$  add  $1$

c)

Input	Output
$n$	
1	1
2	3
3	5
4	7

$7n$

$3n + 1$

double  $n$  then subtract 1  
 $2n - 1$

3. **Assessment Focus** For each table, find the output.

Explain how the numbers 3 and 4 in each relation affect the output.

a)

Input $n$	Output $2n + 4$
1	7
2	10
3	13
4	16

multiply by 2  
then add 4

b)

Input $n$	Output $4n + 3$
1	7
2	11
3	15
4	19

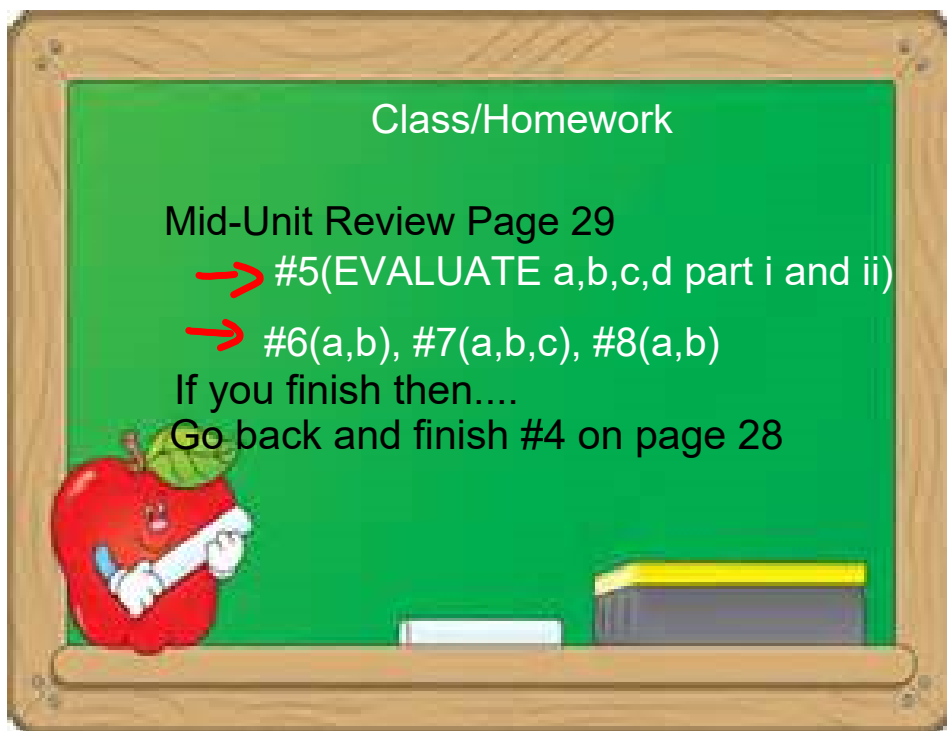
multiply by 4, then add 3  
The order of the operation  
is important



11

0 2 1 2

$6x - 5$



\$12 for each month  $\rightarrow$  1 month \$12  
 \$2 for each hour  $\rightarrow$  t hours

a) Dave does it for 1 month

$$\begin{array}{r} \text{Cost} = 12 + 2t \\ 12 + 2(10) \\ 12 + 20 \\ 32 \end{array}$$

It will  
cost  
Dave  
\$32.

5a i)  $y+7$   
 $8+7$   
 $15$

ii)  $2y$   
 $2(8)$   
 $16$   
Byges

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b)

## 5. Take It Further

- a) Describe the patterns in this table.
- b) Use the patterns to extend the table 3 more rows.
- c) Use algebra.  
Write a relation that describes how the output is related to the input.

Input $x$	Output
5	1
15	3
25	5
35	7
45	9
55	11

(b)

65	13
75	15
85	17

a) Inputs are going up by 10  
Outputs are going up by 2

c) Divide the input by 5,  $\frac{x}{5}$

Homework Sheet Extra Practice 4 # 1-5  
Sheet Extra Practice 5 # 1-3

