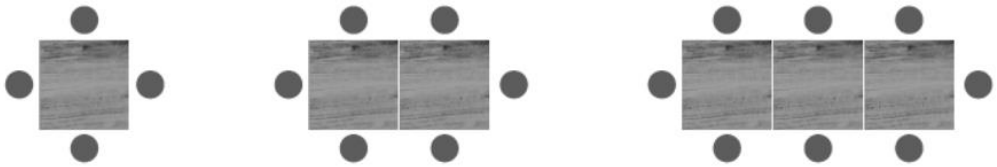
Worksheet 7

Writing and Evaluating Algebraic Expressions

1 made these arrangements of some square tables and round stools.



(a) Complete the table.

Arrangement number	Number of tables, t	Number of stools, s
1	1	4
2	2	6
3	3	8
4	4	10
6	6	14

(b) Write an expression for the number of stools s in terms of the number of tables t.

$s =$ $2t + 2$

(c) Use your expression to find the value of s when $t = 12$.

$2 \times 12 + 2 = 26$

2  stacked playing cards to make these arrangements (side view shown).

Arrangement 1 Arrangement 2 Arrangement 3

(a) Complete the table.

Arrangement number, n	Number of playing cards, c
1	2
2	5
3	8
5	14
7	20

(b) Write an algebraic expression for the number of playing cards c in terms of the arrangement number n.

$c = 3n - 1$

(c) Evaluate your expression when $n = 11$.

$c = 3 \times 11 - 1 = 32$

Check that this answer is equal to the number of cards in Arrangement 11.

3 Evaluate each expression for the given values of n. In each case, write a formula for T in terms of n.

(a)

n	$4n + 1$
1	5
2	9
3	13
4	17
5	21

$T = 4n + 1$

(b)

n	$2n - 2$
2	2
4	6
6	10
8	14
10	18

$T = 2n - 2$

(c)

n	$3n + 5$
1	8
2	11
10	35
20	65
99	302

$T = 3n + 5$