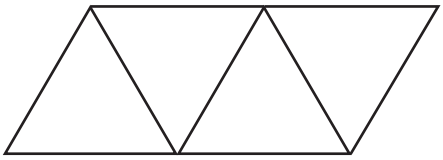
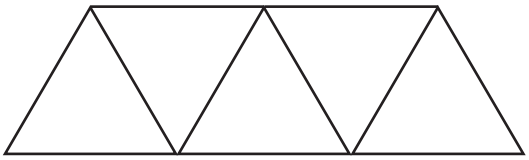
Worksheet Solutions 1
TI-30XB MultiView™: Matchstick Mathematics

WS1

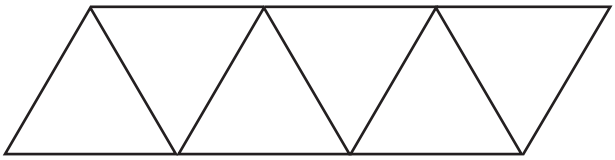
1. Number 3



Number 4



Number 5



2.

Shape number (N)	0	1	2	3	4	5	6	7
Number of matches	3	5	7	9	11	13	15	17

2	2	2	2	2	2	2	2

3. Difference between Number of Matches is + 2

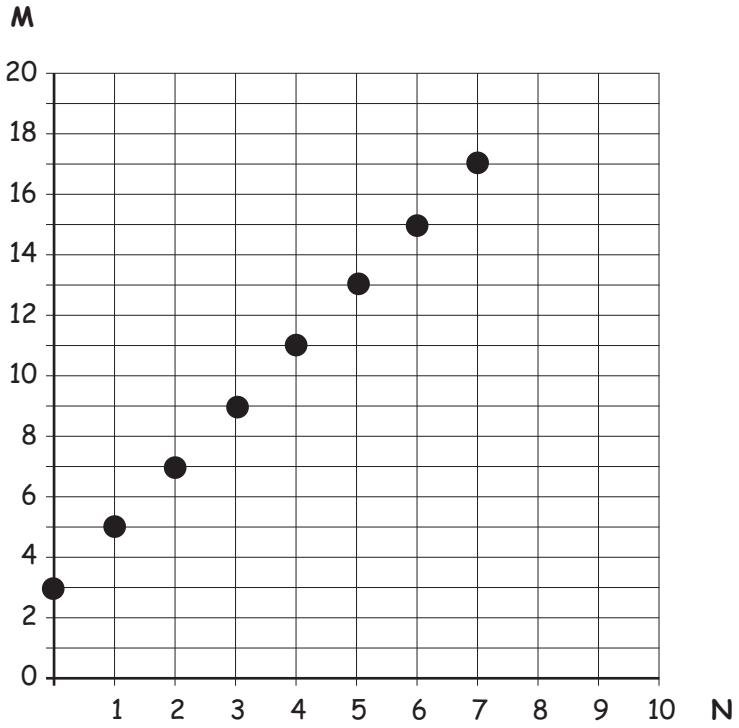
4. Total number of matches = 2 × shape number + 3

5.

N = 35 Pattern number 35 will need 73 matches	Y = 2X + 3 ***[the X gets replaced by 20]*** Y = 2 (35) + 3 Y = 70 + 3 Y = 73
N = 125 Pattern number 125 will need 253 matches	Y = 2X + 3 ***[the X gets replaced by 20]*** Y = 2 (125) + 3 Y = 250 + 3 Y = 253
N = 2001 Pattern number 2001 will need 4005 matches	Y = 2X + 3 ***[the X gets replaced by 20]*** Y = 2 (2001) + 3 Y = 4002 + 3 Y = 4005

6.

Pattern No [N]	**Matches [M] M = 2N + 3**
0	3
1	5
2	7
3	9
4	11
5	13
6	15
7	17



7. A linear trend

Worksheet Solutions 2
TI-30XB MultiView™: Matchstick Mathematics

WS2

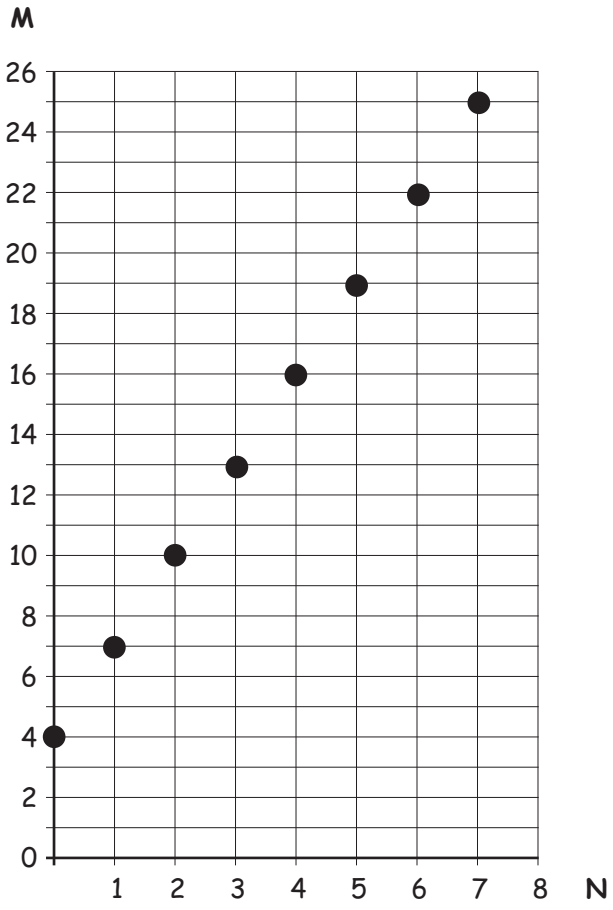
1. N = 3

N = 4

2. Number of matches = 3 x shape number + 4

3.

Shape Number [N]	Number of Matches [M]
0	4
1	7
2	10
3	13
4	16
5	19
6	22
7	25



4.

Fact	Value or Answer
Difference between successive M values, is the pattern a linear pattern?	First difference is 3 Linear pattern
The point on the M axis where the line connecting the points cuts the M axis	(0, 4)
By what amount does an M change as N changes by a value of 1?	3
Rule for the pattern	Y = 3x + 4

5. a = 3

b = 4

Y = 3X + 4

6.

Pattern number (N)	N = 20	N = 35	N = 125	N = 2009
Number of matches (M) needed to stick pattern	M = 64	M = 109	M = 379	M = 6031

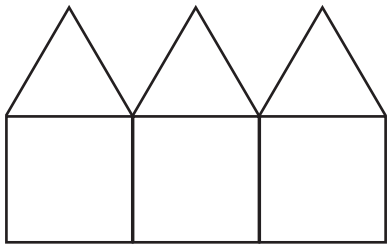
Think Spot

Number of matches (M)	M = 103	M = 244	M = 1126	M = 2497
Pattern number (N)	33	80	374	831

Assessment Task Solutions
TI-30XB MultiView™: Matchstick Mathematics

ATS

1. Draw the next shape in the matchstick house pattern (N = 3)

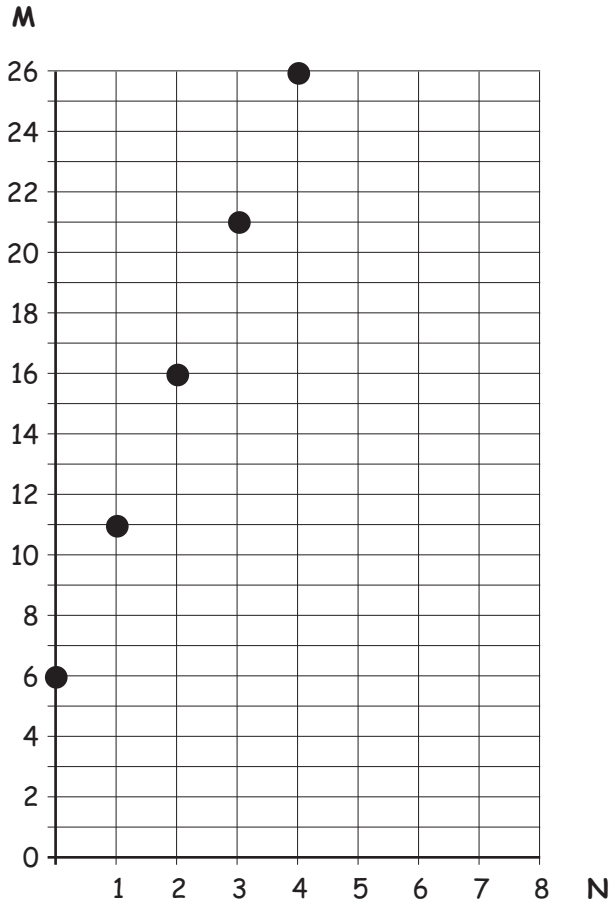


2. Matches = 16

3. Five

4.

Pattern No [N]	Matches [M]
0	6
1	11
2	16
3	21
4	26
5	31
6	36
7	41



5.

Fact	Value or Answer
Difference between successive M values	5
By what amount does an M change as N changes by a value of 1?	5
The point where the line joining the points crosses the M-axis	(0, 6)
Rule for the value of M	M = 5N + 6

6. a)

N = 30 Pattern number 2001 will need 4005 matches	M = 5N + 1 ***[the N gets replaced by 30]*** M = 5(30) + 1 M = 150 + 1 M = 151

b)

M = 961 Pattern number 2001 will need 4005 matches	M = 5N + 1 ***[the M gets replaced by 961]*** 961 = 5N + 1 960 = 5N N = 192