

# Practise

1) a)  $3x + 5$   
 $= 3(4) + 5$   
 $= 12 + 5$   
 $= 17$

b)  $6y - 15$   
 $= 6(2) - 15$   
 $= 12 - 15$   
 $= -3$

c)  $2w + 8$   
 $= 2(-5) + 8$   
 $= -10 + 8$   
 $= -2$

d)  $-3z - 7$   
 $= -3(-6) - 7$   
 $= 18 - 7$   
 $= 11$

2) a) There is one more octagon in every consecutive figure

b)

figure #, n	sides, s
1	8
2	14
3	20
4	26

(Arrows indicate an increase of +6 between consecutive rows.)

c)  $6n + 2$

$S = 6n + 2$

d)  $S = 6(17) + 2$   
 $S = 104$

e)  $722 = 6n + 2$   
 $720 = 6n$   
 $\frac{720}{6} = \frac{6n}{6}$   
 $120 = n$

white  
x length

$y = 4(2) + 4$   
 $= 12$

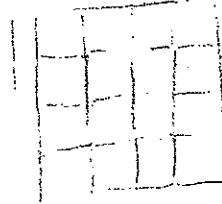
3)

a)

figure #, n	yellow tiles, Y
1	8
2	12
3	16
4	20

(Arrows indicate an increase of +4 between consecutive rows.)

also



The number of yellow squares on the sides is equal to the length of the white squares ( $4x$ , where  $x$  is side length of white square) - then add 4 corners

$y = 4x + 4$

b) yellow tiles increase by 4 each consecutive figure.

c)  $4n + 4$

$Y = 4n + 4$

d)  $Y = 4(24) + 4$   
 $Y = 100$

e)  $176 = 4n + 4$   
 $172 = 4n$   
 $43 = n$

f)  $54 = 4n + 4$   
 $50 = 4n$   
 $50 = 4n$   
 $\frac{50}{4} = n$   
 No  $\frac{50}{4}$  - get a half tile

4.

figure #, n	circles, c
1	11
2	8
3	5
4	2

b) The number of circles decrease by 3 in every consecutive figure.

c)  $-3n + 14$

$c = -3n + 14$

d)  $c = -3(17) + 14$

$c = -51 + 14$

$c = -37$

-37 circles?

e)  $110 = -3n + 14$

$96 = -3n$

$-32 = n$

pictorial models dont work when there are negative numbers of objects or when the number of objects results in a negative figure number.

5.

a)

term, n	value, v
1	-14
2	-8
3	-2
4	4
5	10

b)  $v = 6n - 20$

c)  $v = 6(123) - 20$

$v = 738 - 20$

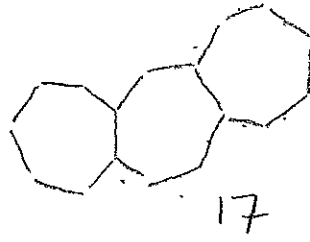
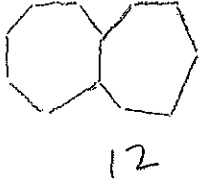
$v = 718$

d)  $250 = 6(n) - 20$

$270 = 6n$

$45 = n$

6) a) figure 1 has 7 sides and each consecutive figure has 5 more sides



b)

figure, n	sides, s
1	7
2	12
3	17
4	22
5	27

+5

+5

+5

+5

+5

c)  $s = 5n + 2$

d)  $s = 5(12) + 2$   
 $s = 62$

e)  $117 = 5n + 2$   
 $115 = 5n$   
 $23 = n$

constant

$7 - (1)(5)$   
 $7 - 5$   
 $= 2$

f)  $74 = 5n + 2^{-2}$   
 $72 = 5n$

NG - does not go in evenly - not a full side !!

7

e)

term, n	value, v
1	-5
2	-8
3	-11
4	-14
5	-17

-3

-3

-3

-3

-3

b)  $v = -3n - 2$

c)  $v = -3(49) - 2$

$v = -147 - 2$

$v = -149$

d)  $-119 = -3(n) - 2^{+2}$

$-117 = -3(n)$

$39 = n$

8

x	y
0	13
1	16
2	19
3	22

+3

+3

+3

$y = 3x + 13$

8

X	Y
0	13
1	16
2	19
3	22

} +3  
} +3  
} +3

$$Y = 3x + 13.$$