g). Use the equation to determine the number of people at
(i). 6 tables?
(ii). 10 tables?
(iii). 25 tables?

$2t + 2 = p$

At 6 tables

$2(6)+2 = 14$

At 10 tables

$2(10)+2 = 22$

At 25 tables

$2(25)+2 = 52$

There are 14 people at 6 tables

There are 22 people at 10 tables

There are 52 people at 25 tables

h). What number of tables are needed to seat 30 people?

Plug in and solve!

$2t + 2 = p$

$2t + 2 = 30$

$-2 \quad -2$

$\frac{2t}{2} = \frac{28}{2}$

$t = 14$

14 tables are needed to seat 30 people.

3. Write an equation for each table below. Verify your answer by substituting values from the table.

a).

n	p
1	3
2	7
3	11
4	15
5	19

0 → -1 → -4

+4, +4, +4, +4

Equation: $p = 4n - 1$

Verify:

$4(1)-1 = 3$ ✓

$4(2)-1 = 7$

$4(5)-1 = 19$

b).

f	b
1	4
2	7
3	10
4	13
5	16

0 → 1 → -3

+3, +3, +3, +3

Equation: $b = 3x + 1$

Verify:

$3(1)+1 = 4$

$3(2)+1 = 7$ ✓

$3(5)+1 = 16$

Examples Continued

4. An airplane is cruising at a height of 9000m. The table below shows the height of the plane every minute after it begins to descend to land.

Time, t (Minutes)	Height, h (meters)
0	9000
1	8700
2	8400
3	8100
4	7800

Zero term → 0

-300 -300 -300 -300

a). Write an equation that relates the height of the plane to the time.

Time, t (Minutes)	Height, h (meters)
0	9000
1	8700
2	8400
3	8100
4	7800

-300 -300 -300 -300

The difference decreased by 300

The start point (zero term) is 9000.

Equation: $h = -300t + 9000$ OR $h = 9000 - 300t$

OR

↳ makes more sense with the situation

b). What is the height of the plane after 15 minutes?

↳ time (t)

Plug in and solve!

$h = -300t + 9000$

$h = -300(15) + 9000$

$h = -4500 + 9000$

$h = 4500$

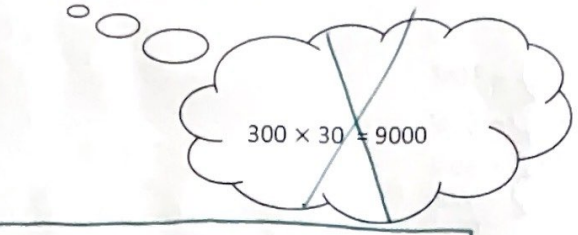
The plane is 4500 m above ground after 15 min.

c). How long after the plane begins its decent does the plane land?

▶ when the plane lands the height is 0, so find the time when h = 0.

$-300t + 9000 = h$

$-300t + 9000 = 0$



$-300t + 9000 = 0$

$-9000 \quad -9000$

$\frac{-300t}{-300} = \frac{-9000}{-300}$

$t = 30$

At 30 minutes the plane will have landed.

5. Jiffy Cabs charges a fixed rate of $3.60 plus $1.50 per kilometre driven.

a). Write an expression for the cost of a ride in the cab.

$3.60 + 1.50km$

b). Write an equation for the total cost of a cab ride.

$C = 3.60 + 1.50km$

c). What is the cost of a 12 km cab ride?

Plug in and solve!

$C = 3.60 + 1.50km$

$C = 3.60 + 1.50(12)$

$C = 3.60 + 18$

$C = 21.60$

The cost of a 12 km cab rid is $21.60