Maths Points

Junior and Leaving Cert

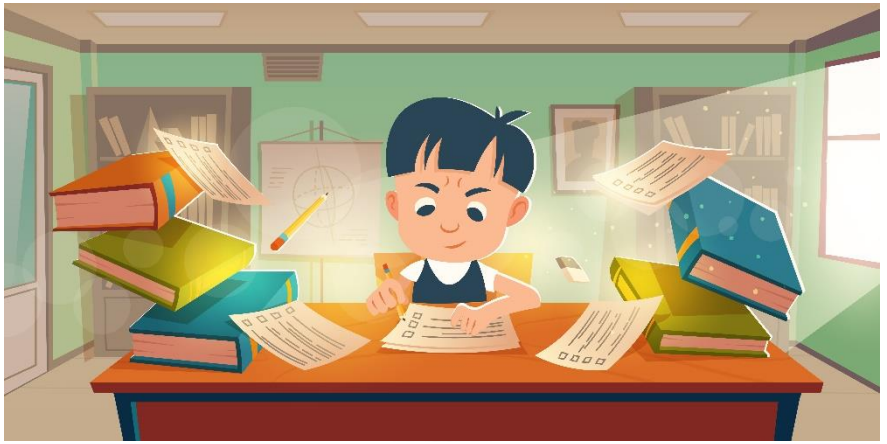
JCOL BASIC SKILLS

PACK 6

Junior Cert Ordinary level

JCOL Basic Skills: Pack 6 – Table of Contents

Contents



Maths Points

Junior and Leaving Cert

Solve the following simultaneous equations.

$$3x + 2y = 39$$

$$x + 2y = 25$$

Label the Equations →

$3x + 2y = 39$ → ①

$x + 2y = 25$ → ②

Multiply one or both lines so that we **eliminate** either the x or y when adding the lines.

① $3x + 2y = 39$

② × −1 $-x - 2y = -25$

$$2x = 14$$

$$x = \frac{14}{2}$$

$$x = 7$$

Sub $x = 7$ back into either original equation to find y.

② $x + 2y = 25$

$7 + 2y = 25$ ← $x = 7$

$2y = 25 - 7$

$2y = 18$

$$y = \frac{18}{2}$$

$y = 9$

$x = 7, y = 9$

VAT at 15% is added to a bill of €84.60.

Calculate the total bill.

Find 115% of the price of the bill before VAT.

$€84.60 \times 1.15 = €97.29$

Alternate Method:
Find 15% of €84.60 and add this onto the price of the bill.

$€84.60 \times 0.15 = €12.69$

$$\begin{array}{r} 84.60 + \\ \underline{12.69} \\ 97.29 \end{array}$$

The total bill is €97.29.

The line l contains the point $(2, 3)$. The slope of l is -1.

Find the equation of the line l.

The formulae for **the Equation of a Line** is on page 18 of the Maths Formulae Book.

Equation of a Line

$y - y_1 = m(x - x_1)$

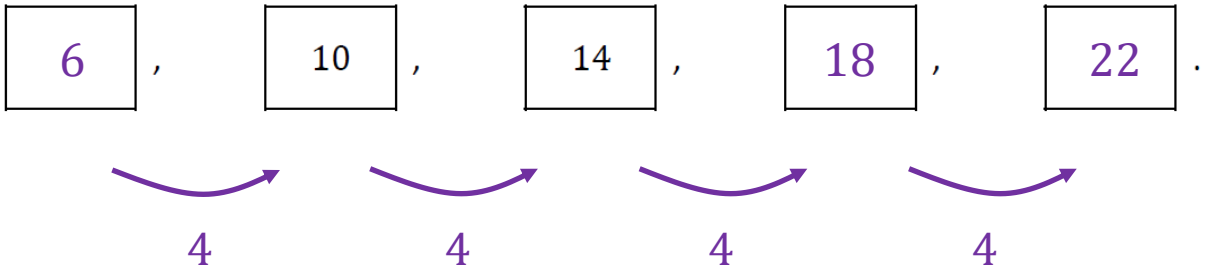
$(x_1, y_1) = (2, 3)$

$m = -1$

$$y - y_1 = m(x - x_1)$$
$$y - 3 = -1(x - 2)$$
$$y - 3 = -x + 2$$
$$x + y - 3 - 2 = 0$$
$$x + y - 5 = 0$$

The equation of the line l is $x + y - 5 = 0$.

Fill in the boxes to make this a **linear** pattern.



In a linear pattern the 1st difference between each term is constant (the same).

$d = T_3 - T_2$

$\text{Difference} = 14 - 10$

$\text{Difference} = 4$

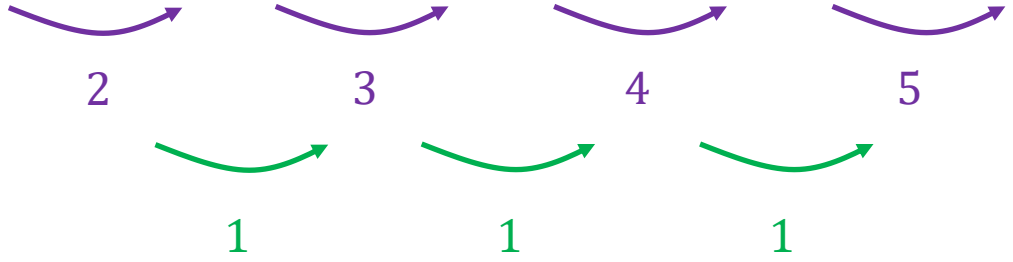
We can find the 1st term by subtracting 4 from 10.

We then keep adding 4 to the previous term to get the next term in the sequence.

Continued

Fill in the boxes to make this a **quadratic** pattern.

2	,	4	,	7	,	11	,	16	.



This is a non-linear pattern.

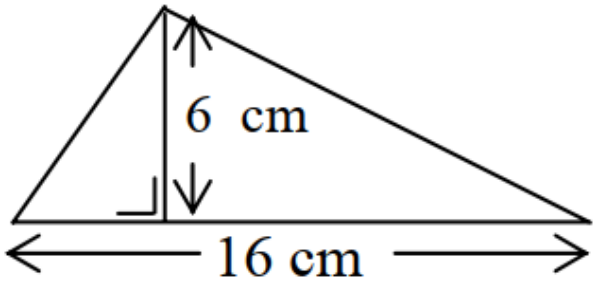
In a quadratic pattern the 2nd difference is constant (the same).

In this pattern the 2nd difference is equal to 1 (the differences between the terms increases by 1 each time).

The 4th term is 4 larger, the 5th term is 5 larger etc…

A triangle has measurements as shown in the diagram.

Find, in cm^2, the area of the triangle.



Area of Triangle

$$A = \frac{1}{2}(\text{base})(\text{perpendicular height})$$

$$V = \frac{1}{2}b(h_{\perp})$$

$$A = \frac{1}{2}(16)(6)$$

$$A = 48 \text{ cm}^2$$

The formulae for the **Area of a Triangle** is on **page 9** of the Maths Formulae Book.

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