## JCOL BASIC SKILLS - PACK 7

## Topics

Algebra - Can I manipulate formula to change the subject?
1 - 2000 JCOL Paper 1 - Question 1 (vii)
Functions and Graphs - Can I find the point where a curve cuts the $x$-axis?
2 - 2012 JCOL Paper 2 - Question 5 (c) (ii)
Geometry - Can I apply the alternate and corresponding angles theorems?
$3-2012$ JCOL Paper 2 - Question 9 (b)
Coordinate Geometry - Can I find the point of intersection of two lines?
4 - 2017 JCOL Paper 2 - Question 10 (b)
Patterns - Can I identify quadratic patterns?
5 - 2019 JCOL Paper 1 - Question 6
www.mathspoints.ie for worked solutions to these questions.
$\square$ JCOL Resources by Topic
$\square$ JCOL Revision - 50 Common Questions

1 - 2000 JCOL Paper 1 - Question 1 (vii)
Express $b$ in terms of $a$ and $c$ when $a+4 b=3 c$.

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2 - 2012 JCOL Paper 2 - Question 5 (c)
$l$ is the line $x+y-5=0$.
By letting $y=0$, find the co-ordinates of the point where the line $l$ meets the $x$-axis.

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## $3-2012$ JCOL Paper 2 - Question 9 (b)

In the diagram below $l_{1} \| l_{2}$. Write the measure of each angle shown by an empty box into the diagram, without using a protractor.


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4 - 2017 JCOL Paper 2 - Question 10 (b)
Find the point of intersection of the following two lines.

$$
\begin{gathered}
y=2 x+7 \\
y=5 x-11
\end{gathered}
$$

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## 5 - 2019 JCOL Paper 1 - Question 6

The first three patterns in a sequence are shown.


## Pattern 1



Pattern 2


Pattern 3
(a) Draw Pattern 4 in the sequence.

(b) Fill in the table to show the number of small squares in each of the first four patterns.

| Pattern | Number of <br> small squares |
| :---: | :---: |
| 1 |  |
| 2 | 5 |
| 3 |  |
| 4 |  |


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(c) The number of small squares in Pattern $n$ is:

$$
n^{2}+1
$$

Use this to work out the number of small squares in Pattern 20.

(d) What kind of sequence is made by the number of small squares in each pattern?

Tick $(\checkmark)$ one box only. Give a reason for your answer.
linear

quadratic

exponential


