

Finding the n th term of a cubic sequence – worksheet

[For instructions watch the video at <http://www.waldomaths.com/video/CubSeq01/CubSeq01.jsp>]

The sequence S has general(n th) term: $an^3 + bn^2 + cn + d$

Write the sequence S here:

$S =$

1^{st} diff. =

2^{nd} diff. =

3^{rd} diff. =

[At this point these 3^{rd} differences should all be the same. If not the sequence is not cubic]

$a = 3^{\text{rd}}$ difference $\div 6$, so $a =$ $\div 6 =$

$an^3 =$

$S - an^3 =$

1^{st} diff. =

2^{nd} diff. =

[At this point these 2nd differences should all be the same. If not the sequence is not quadratic]

$b = 2^{\text{nd}}$ difference $\div 2$, so $b =$ $\div 2 =$

$bn^2 =$

$S - an^3 - bn^2 =$

1^{st} diff. =

[At this point these 1st differences should all be the same. If not the sequence is not linear]

$c = 1^{\text{st}}$ difference, so $c =$

$cn =$

$S - an^3 - bn^2 - cn =$

[At this point these numbers should all be the same. They are the constant term.]

$d =$ constant term, so $d =$

The sequence S has n th term: n^3 n^2 n