# Suite arithmétique

## Définition

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## Exemple concret !

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## Exprimer Un en fonction n

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## Limite d’une fonction arithmétique

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## Somme d’une suite arithmétique

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# Suite géométrique

## Définition

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## Exprimer Un en fonction n

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## Limite d’une fonction géométrique

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## Somme d’une suite géométrique

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# Sujet type bac intermédiaire



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# Suite adjacente (programme de S)

## Définition et propriétés

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## Sujet type bac (juin 2010) dont ROC



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# Raisonnement par récurrence

## Principe

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| Etape 1 |  |
| Etape 2 |  |
| Etape 3 |  |
| Etape 4 |  |

## Cas d’utilisation

### Montrer le sens de variation

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### Montrer une limite

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### Autre chose ?

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## Exercices de type bac

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# Exercice fonction auxiliaire

## Méthodologie

**Situation initiale :**

* Une suite Un quelquonque
* Une suite Vn en fonction de Un

### Démontrer que Vn est une suite géométrique ou arithmétique

1. Exprimer Vn+1 en fonction de Un+1
2. Remplace Un+1 par son expression en fonction de Un
3. On simplifie
4. Dans l’équation Vn en fonction de Un, on isole Un (Encadrer l’équation)
5. On remplace Un par l’expression de Vn
6. On simplifie et on conclue

### Exprimer Vn en fonction de n puis Un en fonction de n

1. Si Vn est une suite géométrique (99% des cas), Vn = V0 x qn
2. On remplace V0 (qu’on aura calculer avant) et q (qui est la raison)
3. D’après l’étape 4 de la question précédente, On remplace Vn par l’expression trouver à l’étape 2

### Calculer la limite de Un

On posera la question quand Vn sera une suite géométrique et que sa raison sera comprise entre -1 et 1.

1. Dire que lim Vn = 0
2. Donc lim Un = 0 + le reste = le reste !

## Exemple

On considère la suite (Un) de nombre réels, définie pour tout entier n≥1 par la relation de récurrence Un+1=0,4-0,3Un et par la condition initiale U1=a (a reel)

1. (Vn) est la suite de nombre reels définie pour tout tout entier naturel naturel n≥1par Vn=13Un-4. Démontrez que (Vn) est une suite géométrique et démontrez sa raison k.
2. b) Exprimer Vn en fonction de n et de a

c) Déduisez-en Un en fonction de n et de a

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## Sujet complet



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