Pre-Exam Notes
DP2

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Contents

Chapter 1

To Remember

1.1 Functions

Definition 1.1.1: Column Transfromation of a graph

If the transformation for $f(x)$ is

$$\begin{pmatrix} 3 \\ 5 \end{pmatrix}$$

Then the new function is

$$f(x-3)+5$$

1.2 Series

Definition 1.2.1: Induction Logic

Since true for $n=1$ and ture for $n=k$ implies true for $n=k+1$, true for all $n \in \mathbb{Z}^+$

1.3 Probability

Note:-

Always remember to include swapping in combination problems
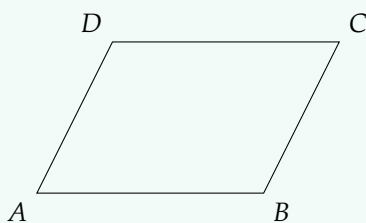
1.4 Trig and Geometry

Definition 1.4.1: Tangent Table

Angle (deg)	$tan(\theta)$
0	0
30	$\frac{1}{\sqrt{3}}$
45	1
60	$\sqrt{3}$
90	undef

Definition 1.4.2: Scalar Product Angle in Parallelograms

If $cos(\theta) < 0$ then θ is obtuse The θ found is always the one with the matching edge

Example 1.4.1 ($cos(\theta)$ Edge)

$$\vec{AB} \cdot \vec{AD} = cos\,\langle \mathbf{BAD}\rangle \left|\vec{AB}\right|\left|\vec{AD}\right|$$

1.5 Calculus

Question 1: Integral of a known derivative

$$\int f(x)\,dx$$

Where $f'(x)$ is known

Solution: Integrate by parts as

$$du = f(x)$$
$$v = 1$$

Note:-
You can flip a derivative if needed

Example 1.5.1 (Given $\frac{dy}{dx} = \frac{5cos(x)}{4}$)

$$\frac{dx}{dy} = \frac{4}{5cos(x)}$$