

タリラリランのコニャニャチワ
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block

This environment is block

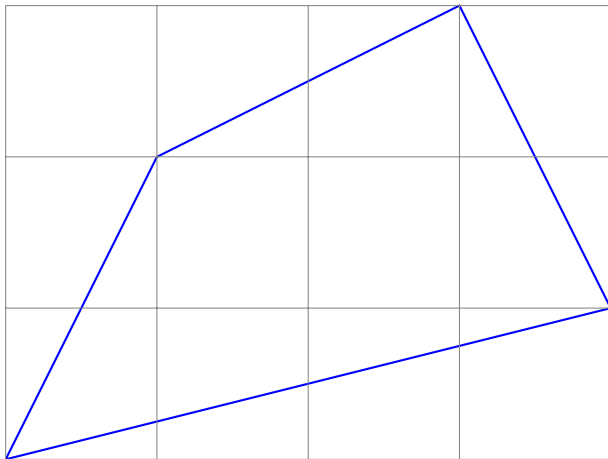
alertblock

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exampleblock

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$$\int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx$$



commutative diagram

five lemma

$$\begin{array}{ccccccccc} M_1 & \xrightarrow{f_1} & M_2 & \xrightarrow{f_2} & M_3 & \xrightarrow{f_3} & M_4 & \xrightarrow{f_4} & M_5 \\ \downarrow h_1 & & \downarrow h_2 & & \downarrow h_3 & & \downarrow h_4 & & \downarrow h_5 \\ N_1 & \xrightarrow{g_1} & N_2 & \xrightarrow{g_2} & N_3 & \xrightarrow{g_3} & N_4 & \xrightarrow{g_4} & N_5 \end{array}$$

- (1) h_1 : surjection, h_2, h_4 : injection $\implies h_3$: injection
- (2) h_5 : surjection, h_2, h_4 : surjection $\implies h_3$: surjection
- (3) h_1, h_2, h_4, h_5 : bijection $\implies h_3$: bijection

$$\begin{array}{ccccccccc}
 M_1 & \xrightarrow{f_1} & M_2 & \xrightarrow{f_2} & M_3 & \xrightarrow{f_3} & M_4 & \xrightarrow{f_4} & M_5 \\
 \downarrow h_1 & & \downarrow h_2 & & \downarrow h_3 & & \downarrow h_4 & & \downarrow h_5 \\
 N_1 & \xrightarrow{g_1} & N_2 & \xrightarrow{g_2} & N_3 & \xrightarrow{g_3} & N_4 & \xrightarrow{g_4} & N_5
 \end{array}$$

Let x be a element of $\ker h_3$. If $x = 0$, then h_3 is injective.