

FY3403 Particle physics
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PAGE 1 OF 1

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EXTRA EXERCISE #1

Which of the following decays is more likely:

$$\Xi^- \rightarrow \Lambda + \pi^- \text{ or } \Xi^- \rightarrow n + \pi^- \quad (1)$$

Explain why, and confirm your answer by looking up the experimental data.

Some decays involve two (or even three) different forces. Draw possible Feynman diagrams for the following processes and explain which interactions that are involved:

$$\mu^- \rightarrow e^- + e^- + e^+ + \nu_\mu + \bar{\nu}_e \text{ and } \Sigma^+ \rightarrow p + \gamma \quad (2)$$