

SC.912.L.16.1 – Genetics – Example 1 Answer

Hemophilia is a sex-linked, recessive trait. Which of the following describes the probability of hemophilia in the offspring of a man who does not have hemophilia and a woman whose father is a hemophiliac?

- A. Each of their sons will have hemophilia.**
- B. None of their daughters will have hemophilia.**
- C. Their sons have a 25% chance of having hemophilia.**
- D. There is a 50% chance that their daughters will have hemophilia.**

Answer

- B. None of their daughters will have hemophilia.

Sex-linked traits are only present on sex chromosomes. Hemophilia is an X-linked chromosome so a father who does not have hemophilia must donate a non-hemophilia gene on the X chromosome he contributes to his daughter. For a girl to have a sex-linked condition, both of her X chromosomes have to have the allele for that condition.