

1. Explain briefly why each of the following statements is false.

(a) $(\exists x \in \mathbb{Q})(x^2 - 3x - 7 = 0)$.

(b) $(\exists x \in \mathbb{R})(x^2 + 1 = 0)$.

(c) $(\exists m \in \mathbb{N})(m^2 < 1)$.

(d) There is a real number x such that x^4 is negative.

(e) $(\forall m \in \mathbb{Z})(m^2 \text{ is even})$.

(f) $(\forall x \in \mathbb{R})(x^2 > 0)$.

(g) For every integer m , $\frac{m}{3}$ is also an integer.