

Force constant (k) of the Spring

$$F(x) = 0.0369x - 0.0092$$

0.0092 is the y-intercept, but it should be zero. This is because when the displacement (x) is zero, the force, $F(x)$, should be zero. This value is error and is close enough to zero to be ignored.

Formula for potential energy of a spring

~~W = 1/2 kx^2~~ $F(x) = kx$

$$F(x) = 0.0369x$$

$$k = 0.0369$$

k is also the slope of the linear force v. displacement graph.