②

$$\frac{1}{2}mV_f^2 - \frac{1}{2}mV_0^2 = \frac{1}{2}(2200)V^2 - \frac{1}{2}(2000)0^2$$

$$= 1100V^2 \qquad —①$$

$$\text{work} = F \times \cos\phi = F_{thrust} \times r \cos 0°$$

$$= (6.4 \times 10^4 N)(20m)(1)$$

$$= 1280000 J \qquad —②$$

from eqⁿ ① and ② -

From work -energy thenow:-

$$\text{work} + \text{work by spring} = \Delta KE$$

=) $$1280000 + \frac{1}{2}K(\Delta n_r)^2 = \frac{1}{2}mV_f^2 - \frac{1}{2}mV_0^2$$

⇒ $$1280000 + \frac{1}{2} \times 75600 \times (5)^2 = 1100V^2$$

=) $$1100V^2 = 1280000 + 945000$$

$\Rightarrow$ $1100 V^2 = \underline{}2225000$

$\Rightarrow$ $V^2 = 2022.72$

$\Rightarrow$ $\boxed{V = 44.97 \ m/s}$