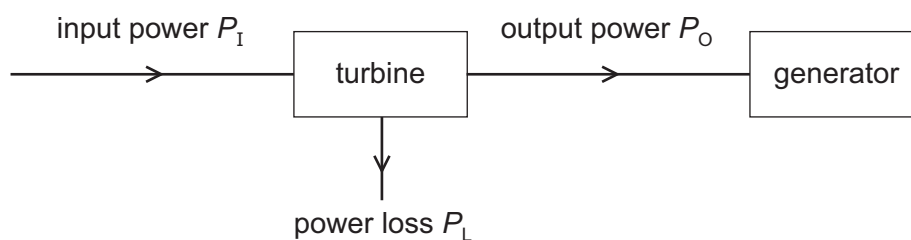


- 15** A steam turbine is used to drive a generator. The input power to the turbine is P_I and the output power is P_O . The power loss in the turbine is P_L , as shown.

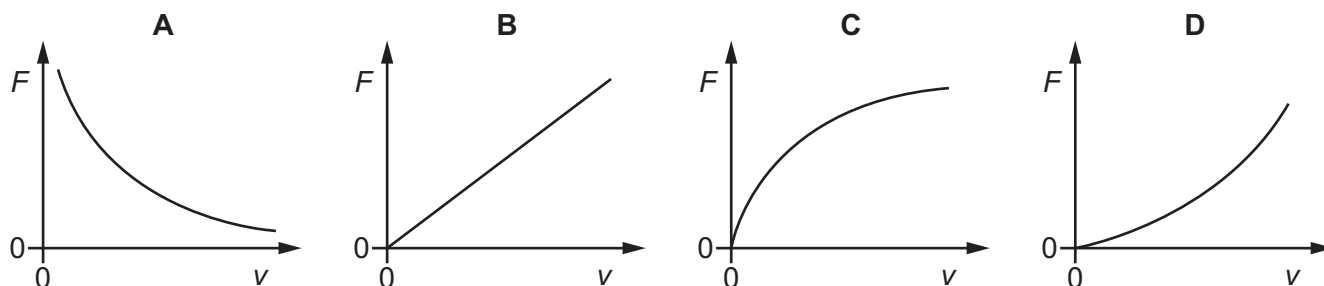


What is the efficiency of the turbine?

- A** $\frac{P_L}{P_O}$ **B** $\frac{P_I}{P_O}$ **C** $\frac{P_L}{P_I}$ **D** $\frac{P_O}{P_I}$

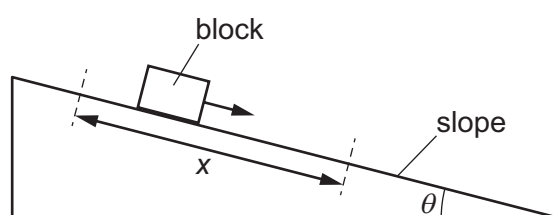
- 16** A variable force is applied to ensure that a constant power is supplied to a train.

Which graph best shows the variation of the force F applied with the velocity v of the train?



- 17** A block is released from rest and slides a distance x down a straight slope.

The slope is at an angle θ to the horizontal.



The slope is frictionless and air resistance is negligible.

The acceleration of free fall is g .

Which expression gives the final speed of the block?

- A** $\sqrt{\frac{gx \sin \theta}{2}}$ **B** $\sqrt{2gx \sin \theta}$ **C** $\sqrt{2gx}$ **D** $2gx \sin \theta$