

$$7. \quad K = \frac{1}{2} (mv^2)$$

We want to isolate the v term on the right hand side of the equation. We will begin by removing the $\frac{1}{2}$ term first by multiplying both sides of the equation by 2 as we did in Problem 3.

$$(2) K = (2) \left(\frac{1}{2}\right) (mv^2)$$

$$2 K = m v^2$$

Now we remove the m term from the right side of the equation by dividing both sides by m

$$2 K / m = (m / m) v^2$$

$$2 K / m = v^2$$

Finally, we take the square root of both sides of the equation to obtain v .

$$v = \sqrt{2K / m}$$