

## Answer on Question #64481, Physics / Mechanics | Relativity

### Question:

A 10 kilogram shell is fired from a 500 kilogram gun with a velocity of 1000 m/sec.  
What is the recoil velocity of the gun?

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### Solution:

Let us assume that the system “shell + gun” is closed. In a closed system the total momentum is constant (according to the law of conservation of momentum).

So for our system we may write following equation:

where  $m$  denotes mass and  $v$  — velocity.

Therefore  $\underline{\hspace{2cm}}$ .

$\underline{\hspace{2cm}}$  m/sec

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### Answer:

20 m/sec