Description: David is driving a steady v when he passes Tina, who is sitting in her car at rest. Tina begins to accelerate at a steady a at the instant when David passes. (a) How far does Tina drive before passing David? (b) What is her speed as she passes him?

Constants | Periodic Table

David is driving a steady 27.0 $\mathrm{m/s}$ when he passes Tina, who is sitting in her car at rest. Tina begins to accelerate at a steady 2.50 $\mathrm{m/s^2}$ at the instant when David passes.

Part A

How far does Tina drive before passing David?

Express your answer with the appropriate units.

ANSWER:

$$\frac{1}{2}a\left(\frac{2v}{a}\right)^2 = 583\,\mathrm{m}$$

Part B

What is her speed as she passes him?

Express your answer with the appropriate units.

ANSWER:

$$2v = 54.0\,\frac{\mathrm{m}}{\mathrm{s}}$$