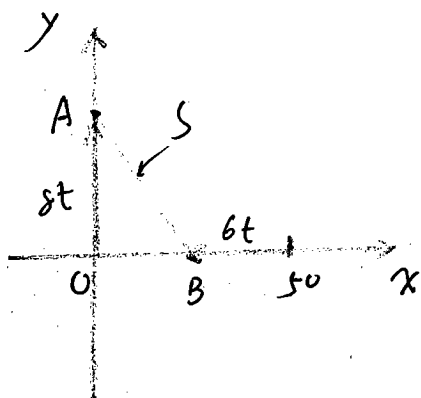


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$$S^2 = (8t)^2 + (50-6t)^2$$

$$(S^2)'_t = 128t + 2 \cdot (50-6t) \cdot (-6)$$

$$= 128t - 12(50-6t) = 200t - 600$$

$$\text{令 } (S^2)' = 0, \text{ 则 } 200t = 600, t = 3(\text{s})$$

$$S_{\text{最短}} = \sqrt{(8 \times 3)^2 + (50-18)^2} = \sqrt{24^2 + 32^2}$$

$$= \sqrt{576 + 1024}$$

$$= \sqrt{1600} = 40(\text{cm}).$$