

9. We use the conversion factors found in Appendix D.

$$1 \text{ acre} \cdot \text{ft} = (43,560 \text{ ft}^2) \cdot \text{ft} = 43,560 \text{ ft}^3.$$

Since $2 \text{ in.} = (1/6) \text{ ft}$, the volume of water that fell during the storm is

$$V = (26 \text{ km}^2)(1/6 \text{ ft}) = (26 \text{ km}^2)(3281 \text{ ft/km})^2(1/6 \text{ ft}) = 4.66 \times 10^7 \text{ ft}^3.$$

Thus,

$$V = \frac{4.66 \times 10^7 \text{ ft}^3}{4.3560 \times 10^4 \text{ ft}^3/\text{acre} \cdot \text{ft}} = 1.1 \times 10^3 \text{ acre} \cdot \text{ft}.$$