

Advanced Higher Maths
SQA 2016 Specimen
Question 7



A spherical balloon is being inflated. When the radius is 10 cm the surface area is increasing at a rate of $120\pi \text{ cm}^2 \text{ s}^{-1}$.

Find the rate at which the volume is increasing at this moment.

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(Volume of sphere = $\frac{4}{3}\pi r^3$, surface area = $4\pi r^2$)

Answer:

$600\pi \text{ cm}^3 \text{ s}^{-1}$