



Related Rates of Change Solutions



1. $\frac{dA}{dt} = 60\pi \text{ cm}^2/\text{s}$

2. $\frac{dr}{dt} = 4 \text{ cm/s}$

3. $\frac{dA}{dt} = 60 \text{ cm}^2/\text{s}$

4. $\frac{dx}{dt} = 10 \text{ cm/s}$

5. i. $\frac{dV}{dt} = 384\pi \text{ cm}^3/\text{s}$

ii. $\frac{dA}{dt} = 240\pi \text{ cm}^2/\text{s}$

6. i. $\frac{dr}{dt} = \frac{12}{r^2} \text{ cm/s}$

ii. $\frac{dr}{dt} = \frac{4}{3} \text{ cm/s}$

iii. $\frac{dA}{dt} = 24\pi \text{ cm}^2/\text{s}$

7. i. $V = 2\pi r^3$

ii. $\frac{dV}{dt} = 1.5 \text{ m}^3/\text{s}$

8. $\frac{dA}{dt} = 40\pi \text{ cm}^2/\text{s}$

9. (a) $V = \frac{\pi h^3}{75}$

i. $\frac{dh}{dt} = \frac{4.762}{\pi} \text{ cm/s}$

