

Daily Agenda

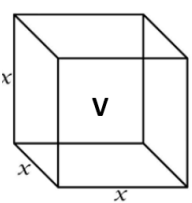
Learning Target:
 • I can find the find a related rate using implicit differentiation.

Homework: Ch 4, Part 2: Day 7 WS
 Assessment: Chapter 4, Part 2 Test - 3/8

Pure mathematics is, in its way, the poetry of logical ideas.
 -Albert Einstein

Nov 15-8:24 PM

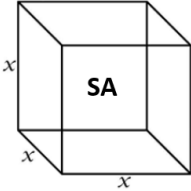
Chapter 4, Day 7: Related Rates
 How are the variables related? How are the rates related?



$V = x^3$
 $\frac{dV}{dt} = 3x^2 \frac{dx}{dt}$

Sep 25-1:25 PM

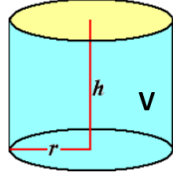
Chapter 4, Day 7: Related Rates
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$SA = 6x^2$
 $\frac{dSA}{dt} = 12x \frac{dx}{dt}$

Sep 25-1:25 PM

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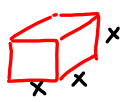


$V = \pi r^2 h$
 $\frac{dV}{dt} = 2\pi r h \frac{dr}{dt} + \pi r^2 \frac{dh}{dt}$

Sep 25-1:25 PM

Chapter 4, Day 7: Related Rates

At a certain instant, each edge of a cube is 3 inches long and the surface area is increasing at a rate of $2 \text{ in}^2/\text{min}$. How fast is the volume of the cube increasing?



$SA = 6x^2$
 $\frac{dSA}{dt} = 12x \frac{dx}{dt}$
 $2 = 12(3) \frac{dx}{dt}$
 $\frac{1}{18} \text{ in} = \frac{dx}{dt}$

$V = x^3$
 $\frac{dV}{dt} = 3x^2 \frac{dx}{dt}$
 $= 3(3)^2 \left(\frac{1}{18}\right)$
 $\frac{dV}{dt} = \frac{3}{2} \text{ in}^3/\text{min}$

$\frac{dV}{dt} = ?$

The volume is increasing at a rate of $1.5 \text{ in}^3/\text{min}$

Sep 25-1:25 PM