

Midterm 2 - 04/08 Mini Review Session - Problems

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Problem 9

What constant acceleration is required to increase the speed of a car from 30 mph to 50 mph in 5 seconds?

Problem 10

Assume the error in measuring the side of a cube of sidelength $r = 2\text{cm}$ is $dr = 0.5\text{ cm}$. Estimate the maximum error and the relative error in calculating the volume of that cube.

Problem 11

The altitude of a triangle is increasing at a rate of $1\text{cm}/\text{min}$ while the area is increasing at a rate of $2\text{cm}^2/\text{min}$. At what rate is the base of the triangle changing when the altitude is 10cm and the area is 100cm^2 ?

Problem 12

Find the point on the hyperbola $xy = 8$ that is closest to the point $(3, 0)$.

Then, based on your preference, I'll either have Q and A session, or we'll cover the following two problems:

Problem 13

Find the points on the ellipse $x^2 + 2y^2 = 1$ where the tangent line has slope 1

Problem 14

Show that $\tan(x) > x$ for $0 < x < \frac{\pi}{2}$