JETS Challenge 107

Heat! Specifically Speaking.

The equation to determine the specific heat (KJ/Kg-Kelvin) as a function of temperature for Carbon Dioxide (CO_2) is given by $cp = -3.7357 + 30.529\Theta^{0.5} - 4.103\ \Theta^2$
where Θ = T (Kelvin)/100.

The Challenge: What is the specific heat at 350 Kelvin?

$$\Theta = \frac{T(Kelvin)}{100} = \frac{350(Kelvin)}{100} = 3.5$$

So

$$Cp = -3.7357 + 30.529\Theta^{0.5} - 4.103\ \Theta^2 =$$

$$-3.7357 + 30.529(3.5)^{0.5} - 4.103\ (3.5)^2 =$$

ANSWER: 3.20965 kj/kg-kelvin

JETS Challenge problems are generously provided by Dave Meredith, Associate Professor, Penn State University-Fayette