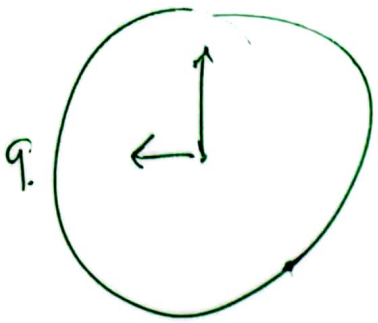
Related Rates Clock Problem



How quickly is the distance between the hands of the clock changing at 9:00pm.?

Apply law of Cosines.

$$a^2 = b^2 + c^2 - 2bc\cos A.$$

$$2a\frac{da}{dt} = +2bc\sin A\frac{dA}{dt}$$

A is the angle between the hands.

$$\frac{dA}{dt} = \frac{dA_{minutes}}{dt} - \frac{dA_{Hours}}{dt}$$

$$\frac{dA}{dt} = 2\pi - \frac{2\pi}{12}$$

you know a is using pythagoras what

b, c, and A are given. So just Substitute and Done.