Math Primer Exercises 4:
TRIGONOMETRY & WAVES

[easy] Give an exact answer to:

a) $\sin\left(\frac{7\pi}{4}\right)$.

b) $\cos^2(120°)+\sin^2(480°)$.

[medium] The minute hand on the clock at the City Hall clock in Waterloo measures 2.2 metres from the axle to the tip.

a) Through what angle does the minute hand pass between 7:07 A.M. and 7:43 A.M.?

b) Approximately what distance does the tip of the minute hand travel during this period?

[hard] Given that we have a cosine wave with equation $\cos\left(\frac{2\pi}{\lambda}x-\frac{2\pi}{T}t\right)$, sketch a graph of the cosine wave at the following times:

$t=0,$

$t=\frac{T}{4},$

$t=\frac{T}{2},$

$t=\frac{3T}{4},$

$and\ t=T$