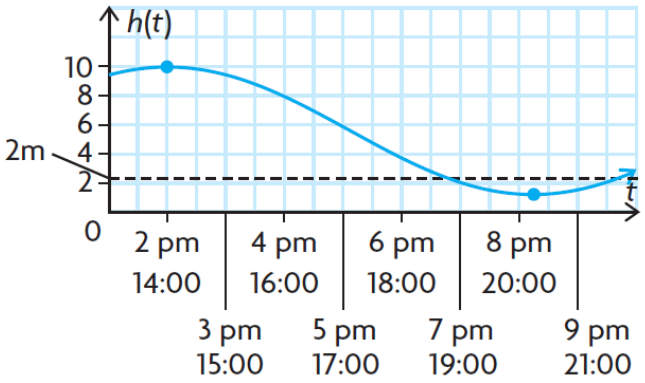
Sec 6.6
Word problems with trig

The tides at Cape Capstan, New Brunswick, change the depth of the water in the harbour. On one day in October, the tides have a high point of approximately 10 m at 2 p.m. and a low point of approximately 1.2 m at 8:15 p.m. A particular sailboat has a *draft* of 2 m. This means it can only move in water that is at least 2 m deep. The captain of the sailboat plans to exit the harbour at 6:30 p.m.

Can the boat sail out of the harbour?



Nov 24-9:55 AM

Use our transformation rules to determine the equation:

$y = a\cos(k(x-d)+c$ or $y = a\sin(k(x-d))+c$

a= the amplitude ⇦ $a = \frac{\max - \min}{2}$

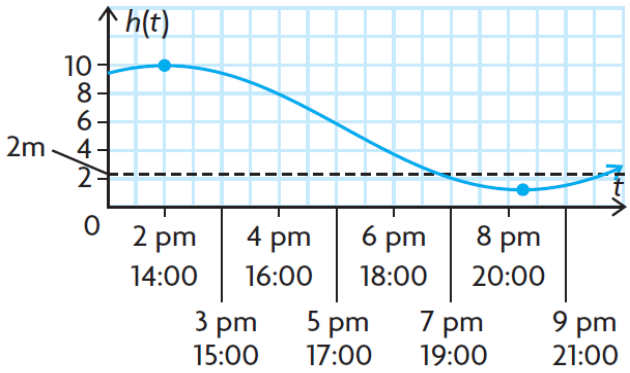
$\frac{2\pi}{k}$ = period ⇦ $k = \frac{2\pi}{period}$

d=horizontal translation (phase shift) ⇦ d = the x-value that relates to the original (0,0)

c= vertical translation ⇦ $c = \frac{\max + \min}{2}$

Once we have the formula we can solve problems.

Nov 24-10:49 AM



Max =

Min =

Period=

$a=$ $d=$

$k=$ $c=$

Equation? (use cos as it is easier to find phase shift for cos for this graph)

Nov 23-1:09 PM

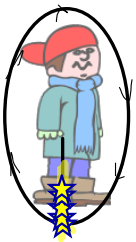
Read through Ex 2 on p356

Notice:
-the data is graphed and then a smooth curve of best fit is applied
-use the curve to find max, min, period
-use the appropriate equations to find a,k,d, and c.
-the sin equation is used this time as it more closely resembles a sin curve.

Nov 24-12:24 PM

Homework
p360 #1,5,6,9,13

Hints:
#1. Some of the calculations are done (ie you have amp already) so just sub in
#5. No "numbers" in this, just an explanation of the meaning of the values.



Sparkler is spinning like this! Perpendicular to the ground.

#6. Use the max and min temp to find "a" and "c". Notice the period is from top to bottom and BACK. The phase shift is always most complicated. Be careful!

Nov 24-10:41 AM