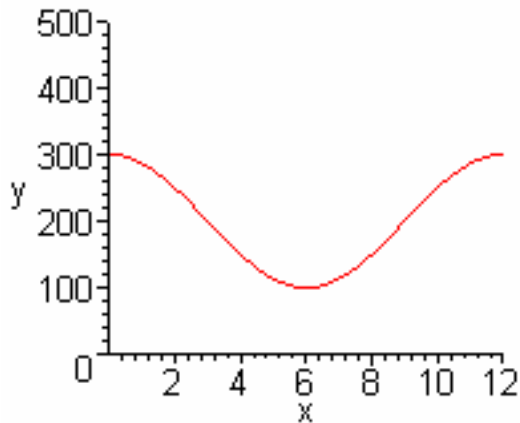


1. Find the general solutions for the equation

$$\sin 2x = \cos x.$$

Express using exact values.

2. Over a 12 week run, the attendance for a local Austin theatre company varies sinusoidally with time, having a maximum attendance of 300 people on opening night ($x = 0$) and again on closing night ($x = 12$) and a minimum of 100 people at the 6th week. The graph of an equation describing this situation is shown below. Write an equation for this graph.



3. Find the exact value of the attendance at the second week ($x = 2$).

- (a) 250 people (b) $50\sqrt{2} + 200$ people (c) $50\sqrt{3} + 200$ people (d) 270 people

At what week of the run will the attendance be the same as in the second week ?

- (a) the 8th week (b) the 11th week (c) the 10th week (d) the 9th week