Exercise 1 Calc. : ✗

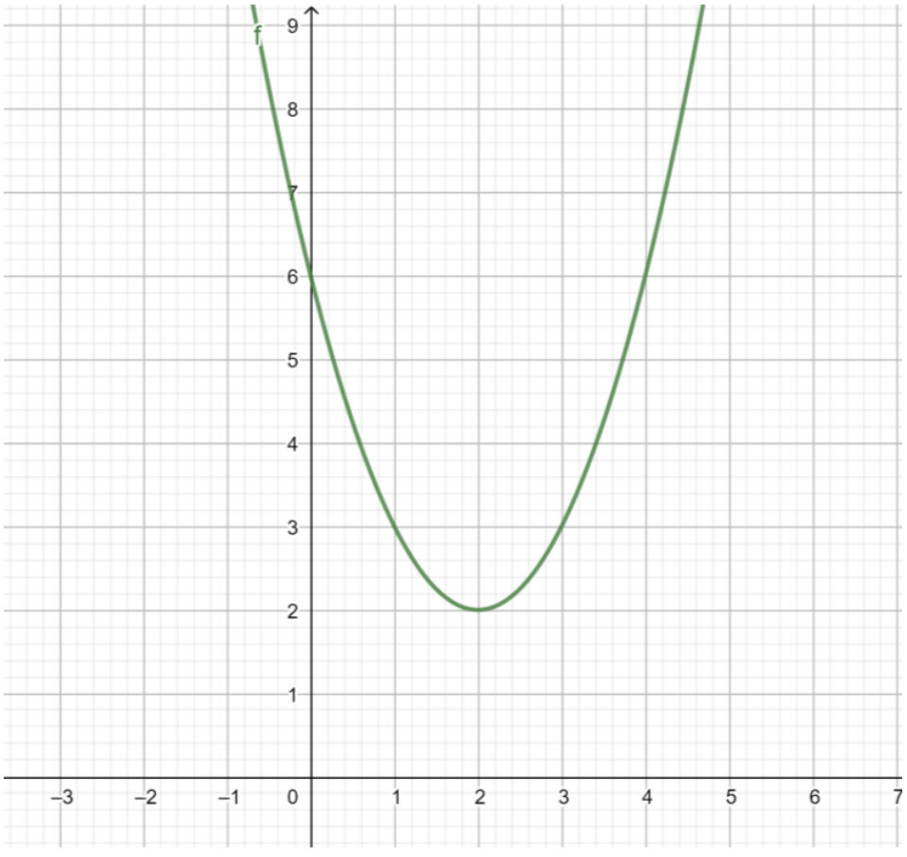
We throw a coin three times in a row to see how many heads or tails we get. Consider the following events: A : « We get at least two heads ». B : « We get tails less than three times ». C : « We get exactly three heads or exactly three tails ». Verify if the events are independent of each other :	
1. Are A and B independent events?	3 marks
2. Are A and C independent events?	3 marks
3. Are B and C independent events?	3 marks

Exercise 2 Calc. : ✗

Six sprinters compete against each other in a final. How many different arrangements could we have on the podium? (The podium consists of a gold medal winner, a silver medal winner and a bronze medal winner).	4 marks

Exercise 3 Calc. : ✗

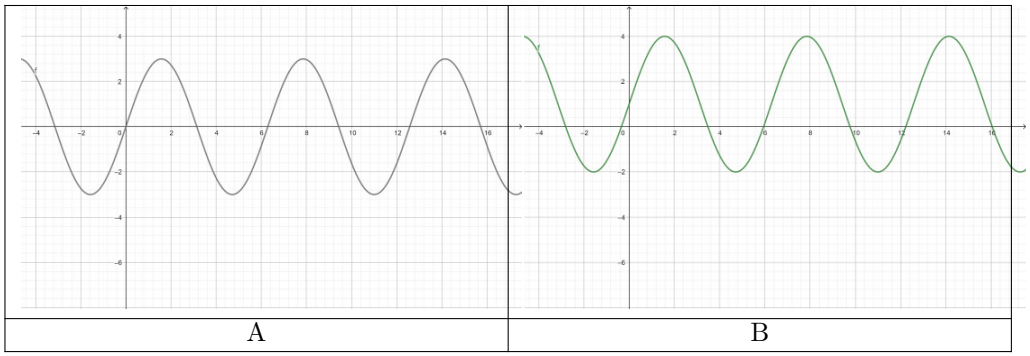
1. Find the equation of the tangent line to the function f at the point $(1, 3)$, given: : $f(x) = x^2 - 4x + 6$.	5 marks
2. Accurately draw the tangent to the function on the accompanying graph.	2 marks



Exercise 4 Calc. : ✗

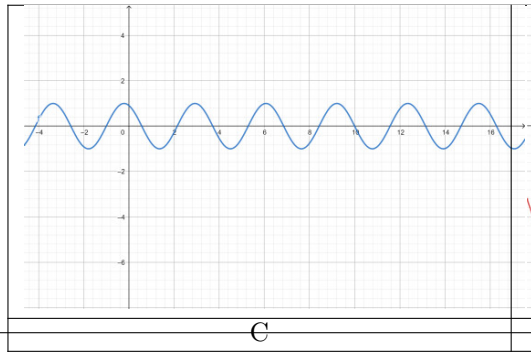
Match each of the following functions to their corresponding graph: 8 marks

Function	$3\cos(x) - 3$	$3\sin(x)$	$\sin(2x + 2)$	$3\sin(x) + 1$
Graph				

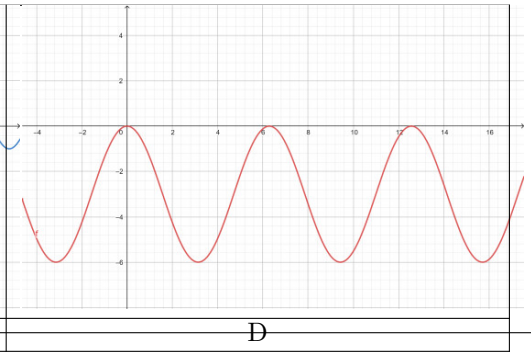


A

B



C



D

Exercise 5 Calc. : ✗

The following data set can be modelled by the function:

$$f(x) = a\sin(b(x - c)) + d$$

x	2	3	4	5	6	7	8	9	10	11
y	11	9.8	7	4.2	3	4.2	7	9.8	11	9.8

1. Estimate the amplitude of the function. 1 mark
2. Estimate the period of the function. 1 mark
3. Estimate the vertical translation of the function. 1 mark
4. Estimate the horizontal translation of the function. 1 mark
5. Fill in the appropriate values of a, b, c and d to write the cosine function which models the data. 3 marks