**Chapter 5 TEST**

Part I – calculators allowed

**Multiple Choice [4]**

*Identify the choice that best completes the statement or answers the question.*

**\_\_\_\_ 1.** The period (in degrees) of the graph of  is

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** |  | **C.** |  |
| **B.** |  | **D.** |  |

*Use the following information to answer the questions.*

The height, *h*, in metres, above the ground of a car as a Ferris wheel rotates can be modelled by the function , where *t* is the time, in seconds.

**\_\_\_\_ 2.** What is the radius of the Ferris wheel?

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** | 9 m | **C.** | 19 m |
| **B.** | 18 m | **D.** | 36 m |

**\_\_\_\_ 3.** How long does it take for the wheel to revolve once?

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** | s | **C.** | 160 s |
| **B.** | 80 s | **D.** | s |

**\_\_\_\_ 4.** What is the minimum height of a car?

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** | 19 m | **C.** | 1 m |
| **B.** | 9 m | **D.** | 80 m |

**Problem**

**5.** a) Solve, for [3]  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
 b) Solve , [4]

**6.** A pebble is embedded in the tread of a rotating bicycle wheel of diameter 60 cm. The wheel rotates at 4 revolutions per second. You want to determine a relationship between the height, *h*, in centimetres, of the pebble above the ground as a function of time, *t*, in seconds. [4]  
a) Determine the period of the function.  
  
  
  
b) Draw a rough shape of the graph with some key elements. (Consider that at the start, the pebble is touching the ground).  
  
  
  
  
  
c) Determine the height as a function of *t*.

**Chapter 5 TEST**

Part II – No calculator allowed

**Multiple Choice [4]**

*Identify the choice that best completes the statement or answers the question.*

**\_\_\_\_ 7.** The range of the graph of  is

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** |  | **C.** |  |
| **B.** |  | **D.** |  |

**\_\_\_\_ 8.** Which graph represents the sinusoidal function ?

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** |  | **C.** |  |
| **B.** |  | **D.** |  |

**\_\_\_\_ 9.** The graph of  can be obtained by translating the graph of 

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** | units to the right | **C.** | units to the right |
| **B.** | units to the right | **D.** | units to the right |

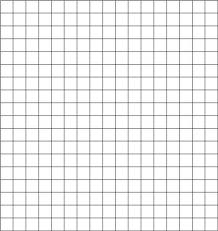
**\_\_\_\_ 10.** Which function, where *x* is in radians, is represented by the graph shown below?



|  |  |  |  |
| --- | --- | --- | --- |
| **A.** |  | **C.** |  |
| **B.** |  | **D.** |  |

**Short Answer**

**11.** Sketch the graph of  for two cycles and state the domain, range, period, and equations of the asymptotes. *x* is measured in radians. [4]



**12.** Sketch the graph of for . [3]

