**MATH 30-1**

**TRIG 1**

**YEAR END REVIEW**

**NUMERIC RESPONSE SECTION:**

1. An angle at the centre of a circle is subtended by an arc  cm long. If the circle has a radius of 2 cm, find the measure of the angle, correct to the nearest tenth of a degree.

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2. The terminal arm of an angle in standard position makes 2.2 revolutions counter- clockwise. Find the radian measure of the principal co-terminal angle, correct to the nearest hundredth.

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*Use the following information to answer the next* ***two*** *questions*

 In 366-day year, the average daily maximum temperature in Vancouver follows a sinusoidal pattern with a highest value of C on day 208, July 26, and a lowest value of C on day 26, January 26th.

3. To the nearest tenth of a degree, what is the expected maximum temperature for day 120, May 26th?

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4. In one year, how many days will have an expected maximum temperature greater than ?

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| --- | --- | --- | --- |
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5. If the point  lies on the graph of , then the value of , to the nearest tenth, is \_\_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
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6. If the function has a range of , then the values of **a** and **d** respectively are \_\_\_\_\_ and \_\_\_\_\_.

|  |  |  |  |
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**WRITTEN RESPONSE SECTION:**

1. Write an equation for each function as described:

 a) a sine function with a horizontal phase shift right of , and a period of 

 b) a cosine function, vertically translated 2 units up, with an amplitude of 2

 c) a sine function with an amplitude of 3, a horizontal phase shift left of , and a vertical translation up 3 units.

2. Write a cosine equation for the following graph.



3. Sketch the following equation on the grid below.

 



**MULTIPLE CHOICE SECTION:**

*Use the following graph to answer the next 2 questions.*



1. On the graph above, what is the value of b?

 A. 2

 B. 3

 C. 4

 D. 6

2. On the graph above, what is the value of a?

 A. 1.5

 B. 2

 C. 3

 D. 4

3. What is the period of ?

 A. 

 B. 

 C. 

 D. 

*Use the following information to answer the next* ***two*** *questions.*

The function  is used to model the

tide height (*h* in metres) at a port for time (*t* in hours).

4. How long is one cycle of the tide?

 A. 30 minutes

 B. 6 hours

 C. 12 hours

 D. 30 hours

5. For the period of one day, what would the range for this function be?

 A. 

 B. 

 C. 

 D. 

*Use the graph below to answer the following* ***two*** *questions.*



6. The period of the above graph is

 A. 8.5

 B. 10

 C. 12.5

 D. 15

7. The range of the above graph is

 A. 

 B. 

 C. 

 D. 

8. What trigonometric relationship does the given point on this graph illustrate?



 A. 

 B. 

 C. 

 D. 

9. The height,  , in metres, of a car on a ferris wheel at time, t, in seconds, is given by

 . What is a possible equation if the ferris wheel goes twice as fast and at time zero the position is at the bottom of the ferris wheel?

 A. 

 B. 

 C. 

 D. 

10. Compared to the graph of , the graph of has undergone a

 A. vertical stretch by a factor of c units

 B. vertical displacement of c units

 C. horizontal phase shift of c units

 D. horizontal stretch by a factor of c

11. If the function  has an amplitude of 5, a reflection in the y-axis, and a shift of 4 units to the left, and 7 units up, what are the values of a, b, c, and d, respectively?

 A. 5, -1, -4, 7

 B. -5, 1, -4, 7

 C. 5, -1, 4, 7

 D. -5, 1, 4, 7

12. The radius of the earth is 6380 km. A satellite is 100 km above the earth and it travels around the planet through an angle of  radians. To the nearest km, how far does the satellite travel?

 A. 33 406 km

 B. 10 633 km

 C. 33929 km

 D. 3438 km

13. Which of the following statements does **not** describe the graph of 

 A. The amplitude is 3.

 B. The period is .

 C. This graph is the same as the graph of with a phase shift of right.

 D. This graph is the same as the graph of  with a vertical translation of 3 units down.

14. The partial graphs of two sinusoidal functions are shown below on the same grid.



 Graph 1

 Graph 2

 The equation of graph 1 is  for some integers a, b, c, and d.

 Graph 2 is obtained by changing exactly two parameters in the equation of graph 1. The

 two parameters that have changed are

 A. a and c

 B. a and d

 C. b and c

 D. b and d

15. The period, in radians, of the function  is

 A. 

 B. 

 C. 

 D. 