# BC Cumulative 3

1. and are the parametric equations for
   1. A circle
   2. A square
   3. A parabola
   4. A hyperbola
2. If and are the parametric equations of a curve, the curve will have a horizontal tangent line at if
   1. and
   2. and
   3. and
   4. and
3. To find the slope of the tangent line to a parametric curve at the point where you should
   1. Evaluate
   2. Evaluate
   3. Evaluate
   4. Evaluate
4. To determine concavity of a parametric curve at the point where
   1. Evaluate
   2. Evaluate
   3. Evaluate
   4. Evaluate
5. If a parametric curve has a point where and then
   1. There is a horizontal tangent line at
   2. There is a vertical tangent line at
   3. There is no tangent lint at
   4. The curve must cross itself
6. The distance traveled from to of a particle with position vector is given by
7. The displacement of a particle moving in the plane over an interval of time
   1. Can be positive or negative
   2. Is the same as the distance traveled
   3. Is never less than the distance traveled
   4. Depends on the shape of the path taken
8. If a particle in the first quadrant is accelerating towards the axis then
9. Which of the following is not a polar-rectangular transformation equation?
10. If is a positive integer, the graph of always
    1. Has one intercept at
    2. Is a rose with petals
    3. Is a rose with petals
    4. Completes exactly one period of the graph over
11. The graph of
    1. Has an inner loop whenever
    2. Has an inner loop whenever
    3. Never intersects the -axis
    4. Never intersects the -axis
12. The area enclosed by a polar curve between and is always
    1. Dependent on if the curve intersects itself in the interval
13. If at a point where then
    1. The graph’s radius is increasing at
    2. The graph’s radius is decrasing at
    3. The tangent line to the graph has a positive slope
    4. The tangent line to the graph at has a negative slope
14. A logistic population graph with a max population of
    1. Has an asymptote at
    2. Has a decreasing growth rate when
    3. Has an increasing growth rate when
    4. Can oscillate for certain initial conditions
15. The maximum growth rate for a logistic population with carrying capacity
    1. Occurs when the population is
    2. Depends on the initial conditions
    3. Always occurs at
    4. Can happen more than once during a given solution