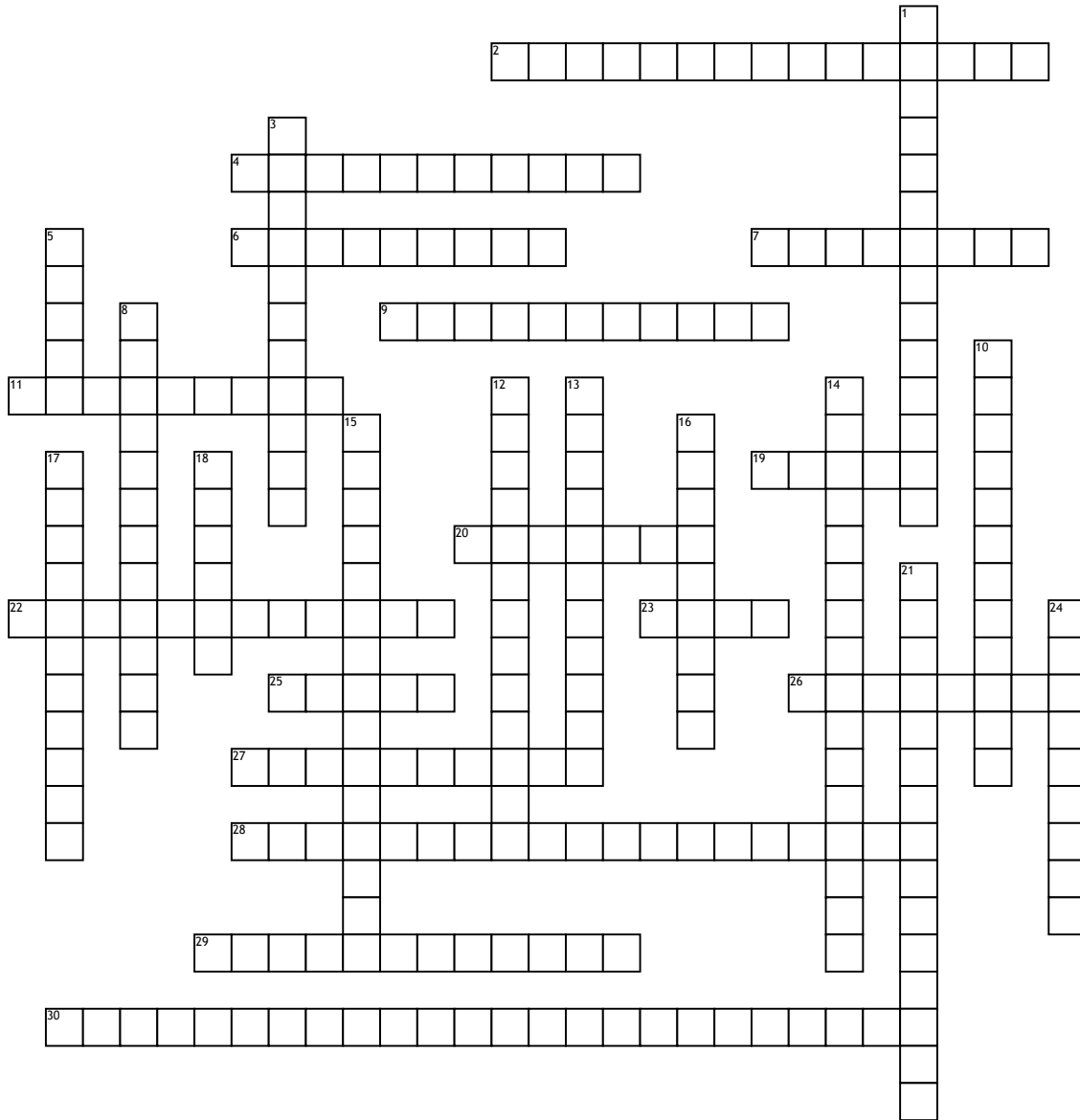Name: _____ Date: _____ Period: _____

# Calc BC Cross Word Puzzle



## Across

**2.** A function f has this at (c,f(c)). if f"(c)=0 or f"(c) does not exist and if f" changes sign from positive to negative or negative to positive at x=c or if f'(x) changes from increasing to decreasing or decreasing to increasing at x=c

**4.** graphical approach, also called 'direction fields'. Pick several points (x,y) and sketch a tiny segment with slope as specified by dy/dx. It shows the general shape of all solutions.

**6.** This series diverges if |r|>=1. If |r|<1, the series converges to the sum S=a/(1-r). _____ series.

**7.** In a rational function, this asymptote occurs when a factor remains in the denominator.

**9.** S= 2pi∫ f(x){sqrt(1+[f'(x)]^2)} dx on the bounds of a to b. What is this formula for?

**11.** s= ∫ sqrt(1+[f'(x)]^2) dx on the bounds of a to b. What is this formula for?

**19.** In a rational function, this asymptote occurs when the power of x in the numerator is greater than the power of x in the denominator.

**20.** If the limit does not exist, we say that the improper integral _____.

**22.** suppose that f and g are differentiable at x and g(x) is not equal to 0. Then (d/dx)[f(x)/g(x)]= (f'(x)g(x)-f(x)g'(x))/(g(x))^2. What's this rule's name?

**23.** When f(x)>=g(x) on the interval [a,b], then the ? between these two curves in the given interval is ∫ [f(x)-g(x)]dx (bounded a to b)

**25.** If an object moves along a straight line with position function s(t), then its this is |v(t)|

**26.** If an object moves along a straight line with position function s(t), then its this is v(t)=s'(t)

**27.** this of the function f(x) at x=a is defined as f'a= lim(h approaching to 0) (f(a+h)-f(a))/h

**28.** In a rational funcion, the graph appears to approach thee horizontal line y=c, as x approaching infinity or negative infinity. In this case, what is y=c?

**29.** the process of finding the greatest or least value of a function for some constraint, which must be true regardless of the solution. This finds the most suitable value for a function within a given domain.

**30.** If f is continuous on [a,b] and k is any number between f(a) and f(b), then there is at least one number c between a and b such that f(c)=k

## Down

**1.** A situation where population growth levels off and approaches a limiting number M ( the carrying capacity) because of limited resources is called this.

**3.** This series is a series whose terms are alternately positive and negative. _____ series.

**5.** This coordinate system is a two-dimensional system where each point is represented as a distance r from the origin (sometimes called the pole) and an angle θ from the positive horizontal axis.

**8.** Numerical approximation to the solution to a differential equation. Arithmetic way of following the lines in a slope field. Use the point slope form to find an approximation value. Given an initial value, and an indicated step size, along with the DE, we can solve for the solution. What method is this?

**10.** If an object moves along a straight line with position function s(t), then its this is a(t)=v'(t)=s"(t)

**12.** Let f be defined at c. If f'(c)=0 or if f' is undefined at c, what is c?

**13.** when the sum of their expanded terms reaches a boundary or limit.

**14.** If f is continuous on [a,b] and differentiable on (a,b), then there exists a number c on (a,b) such that f'(c)=(f(b)-f(a))/(b-a)

**15.** The lowest point on a graph, especially over a specified domain. It is the least value of f(x) over a defined interval of x, provided y=f(x). (f'(x)=0 , f"(x)>0 )

**16.** The derivative using this rule is (d/dx)x^n=nx^(n-1) where n is any real number

**17.** suppose that f and g are differentiable at x. then (d/dx)[f(x)g(x)]= f'(x)g(x)+f(x)g'(X). what is this rule's name?

**18.** When V= ∫ pi[(outer radius)^2-(inner radius)^2]dx (bounded a to b) What method is this?

**21.** The highest point on a graph, especially over a specified domain. It is the greatest value of f(x) over a defined interval of x, provided y=f(x). ( f'(x)=0 , f"(x)<0 )

**24.** A line (or curve) that a function approaches without actually reaching the line as the domain either grows unbounded or approaches a limit.