



Name: \_\_\_\_\_

2016–2017 Mathematics Teacher: \_\_\_\_\_

## **Summer Review for incoming Calculus AP students**

Please complete this review packet for the  
**FIRST DAY OF CLASS.**

The problems included in this packet will provide you with the opportunity to practice the mathematical skills you have learned throughout the current school year and will help you to be prepared for the concepts you will learn in Calculus next school year. You are responsible for ALL the concepts covered in the packet. If you do not remember how to complete a problem, look it up in your notes or online. If you should misplace this packet, you can find a copy posted on the district website:

<http://nbhs.northbranfordschools.org/>

The packet will be collected the first day of class. Please demonstrate *integrity* by completing the packet individually. It is essential for YOU to know and review the material.

You will receive a homework grade on this packet based on the following criteria:

- Work is received on the first day
- All problems are completed
- All work is shown

You will receive an assessment grade based on correctness.

## Algebra Review

1) The length, width, and height of a shoe box with no cover are L, W, and H respectively. What is the surface area of the outside of the open box in terms of L, W, and H?

2) Simplify:  $\frac{a^2b^{-5}}{a^3b^2}$

3) Determine the domain of the function  $f(x) = \frac{x+1}{\sqrt{x-2}}$

4) Solve:  $\frac{1}{2}x + \frac{3}{4} = \frac{2}{3}(x-6)$

5) Find an equation for the line through the points (1, 2) and (-3, 4)

6) Find the coordinates of the point where the lines  $2x + y = 3$  and  $3x - 2y = 4$  intersect.

7) Simplify  $25^{\frac{1}{2}} \cdot 8^{\frac{-2}{3}}$

8) If  $f(x) = 2x + 1$  and  $g(x) = x^2 - 2$ , determine the formula for the composition  $f \circ g(x)$ .

9) Solve the equation  $5x^2 - 3x - 2 = 0$

10) Solve the equation  $\log_5(x + 1) = 2$

11) Solve the equation  $\frac{x}{x+1} = \frac{2}{2x-1}$

12) Find a formula for the inverse function of  $f(x) = 2x - 7$

13) Factor  $ab^3 - a^3b$

14) Determine the distance between the points (2, -3) and (5, 7).

15) Determine  $f(t+1)$  if  $f(x) = \frac{x+1}{x-1}$

16) Solve the inequality  $2x + 3 \leq 5x - 7$

17) Solve the equation  $|3x + 2| = 11$

18) Solve the inequality  $|5x - 3| \leq 10$

## Trigonometry Review

1) Express  $\tan x \cos x$  as a single trigonometric function.

2) Determine the exact value of  $\cos \frac{\pi}{3}$

3) Determine the exact value  $\sin^2 \frac{11x}{13} + \cos^2 \frac{11x}{13}$

4) If  $\cos t = .123$ , determine the value of  $\cos(t + 2\pi)$ .

5) For what values of  $\theta$  is  $\tan \theta$  undefined.

6) Determine the value of  $\sec x$  if  $\tan x = \frac{5}{6}$  and  $0 < x < \frac{\pi}{2}$

7) Determine the radian measure of an angle of  $150^\circ$

8) A right triangle has legs of lengths 3 and 7. Determine the exact value of the sine of the smallest angle in that triangle.

9) Determine all values  $x$  for which  $\cos x = \frac{\sqrt{3}}{2}$

10) Solve the equation  $\sin x = \cos x$