

June 2, 2022

Dear Class of 2024,

Congratulations on successfully completing FST! I'm sure you worked hard and deserve a nice, restful summer.

I have attached a packet of problems I'd like you to do sometime this summer. It involves a review of some algebra and some trigonometry. (Trig will be the first topic in 11th grade Precalculus, so let's hit the ground running.) Please have them completed and be ready to discuss them on the first day of school.

If you have questions as you work through the problems, feel free to email me:

ctallman@wcskids.net (I will not reply immediately, but I will reply.)

Have lots of fun this summer! Read some great book ~ Be creative and draw, paint, cook, bake, write poems and stories ~ Sing, write music, play your instrument ~ Go outside and bike, hike in the woods, climb a tree, play, swim ~ Connect with your friends and your family ~ Sit and think ~ Wonder ~ Imagine ~ Do some mathematics ~ Rest and relax and come back ready to go!

I look forward to meeting all of you.

Have a wonderful summer!

A handwritten signature in cursive script that reads "Mrs. Tallman". The signature is written in black ink and is positioned above the printed name.

Mrs. Tallman

A Little Trig Review!

1. In a right triangle with right angle at C, $A = 47.3^\circ$, and $b = 39.6$ cm. Find B and c.

2. In a triangle with $C = 74^\circ 10'$, $c = 96.3$ cm, $B = 39^\circ 30'$. Find A and b.

3. In a triangle with $a = 6$, $b = 7$ and $c = 5$, find the measure of angle B.

Without a calculator, sketch at least 1 period of the following graphs. Label both axes with necessary labels.

4. $y = 3\sin(2x)$

5. $y = -2\cos(x - \pi/4)$

6. $y = \tan(x) + 3$

7. Draw a right triangle ABC with sides a, b, and c. *(Right angle is at C)*
 $\sin A =$ $\cos A =$ $\tan A =$

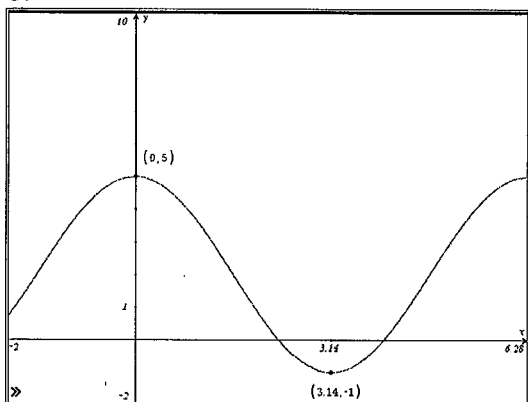
$\cot A =$

$\sec A =$

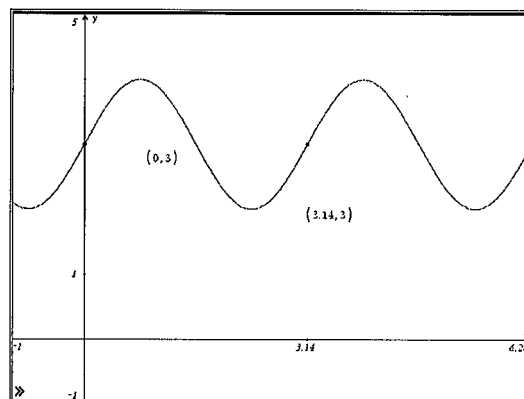
$\csc A =$

Write an equation for the following trigonometric functions

8.



9.



10. Without looking at the unit circle ☺

$\sin \pi/3 =$

$\sec \pi/3 =$

$\csc \pi/3 =$

$\cos \pi/6 =$

$\tan \pi/6 =$

$\cot \pi =$

$\tan \pi =$

$\sin \pi =$

11. Why is $(\sin x)^2 + (\cos x)^2 = 1$??

THAT DARNED DISTRIBUTIVE LAW

(The root of all evil – and the source of 92% of all algebraic errors)

The Distributive Law says:

$$C(A + B) = CA + CB$$

Multiplication distributes over addition.

IT DOES NOT SAY: “Everything in the whole universe distributes over addition”

In fact, the horrible truth is.....

Other than multiplication, virtually NOTHING DISTRIBUTES OVER ADDITION!!

1. Do ROOTS distribute over addition? Does $\sqrt{9+4} = \sqrt{9} + \sqrt{4}$? _____
2. Do POWERS distribute over addition? Does $(a + b)^n = a^n + b^n$? _____
3. Do RECIPROCALs distribute over addition? Does $\frac{1}{2+3} = \frac{1}{2} + \frac{1}{3}$? _____
4. Do LOGS distribute over addition? Does $\log(a + b) = \log a + \log b$? _____
5. Do TRIG FUNCTIONS distribute over addition? Does $\sin(a + b) = \sin a + \sin b$? _____
6. Does ABSOLUTE VALUE distribute over addition? Does $|a + b| = |a| + |b|$? _____

Put an x through the equals sign of all the statements below that are false. Fix the ones you can.

7. $\sqrt{x^2 + 25} = x + 5$

8. $(x + y)^5 = x^5 + y^5$

9. $(d - 2)^3 = d^3 - 8$

10. $(\sqrt{x} + 7)^2 = x + 49$

11. $\log(3 + x) = \log 3 + \log x$

12. $\sin(x + \pi) = \sin x + \sin \pi$

ALGEBRAIC A _____ S

Statement	True or False?
1. $\frac{3}{a} + \frac{3}{b} = \frac{3}{a+b}$	_____
2. $\frac{a+b}{c+d} = \frac{a}{c} + \frac{b}{d}$	_____
3. $\sqrt{a^2 - b^2} = a - b$	_____
4. $(a - b)^2 = a^2 - b^2$	_____
5. $\frac{a}{b} = \frac{a^2}{b^2}$	_____
6. $\sqrt{a+b} = \sqrt{a} + \sqrt{b}$	_____
7. $\frac{a+b}{b} = a$	_____
8. $\frac{1}{a+b} + (a+b)^2 = a+b$	_____
9. $2a^{-1} = \frac{-1}{2a}$	_____
10. $a^{-2} = -a^2$	_____
11. $\sqrt{a}(a) = a^2$	_____
12. $\frac{1}{3}(-6)^3 = -2^3$	_____
13. $a^{2/3} = \frac{a^2}{a^3}$	_____
14. $\frac{\sin a}{a} = \sin 1$	_____
15. $\frac{\sin 2a}{a} = \sin 2$	_____
16. $\sin(2a) = 2 \sin(a)$	_____
17. $\sin(a+b) = \sin a + \sin b$	_____
18. $\log(a+b) = \log a + \log b$	_____
19. $(\sin a)(\sin 2a) = 2(\sin a)^2$	_____
20. If $a + b = 0$, either $a = 0$ or $b = 0$.	_____
21. If $x(x-2) = 24$, either $x = 24$ or $x-2 = 24$.	_____
22. $abc = (ab)(ac)$	_____
23. If $\log a = b$, then $a = \frac{b}{\log}$.	_____
24. $\frac{10t+u}{10u+v} = \frac{t}{v}$	_____