Trig Exam 1 (100 points)
Exam Date: _____ Name: _____

During each Exam, you will be allowed to use the provided formula sheet that I provided.You will also be allowed to have multiple sheets of blank scratch paper and a graphing calculator: TI 30X IIS, TI 30 X IIB, TI-83, TI-83+, TI-84, TI-84+, TI-84+ silver edition, or TI-84 CE for exams. Calculators such as, but not limited to TI-89, TI Inspire or Casio calculators will not be permitted.

No other notes, books or other materials are allowed.

**Important things to know for Exams:**

- Cell phones must be turned off and placed in front of the student face down.
- Once the exam is started, a student cannot leave and re-enter the classroom.
- Once a student has completed the exam and left the classroom, no exams will be handed out. Be on time!

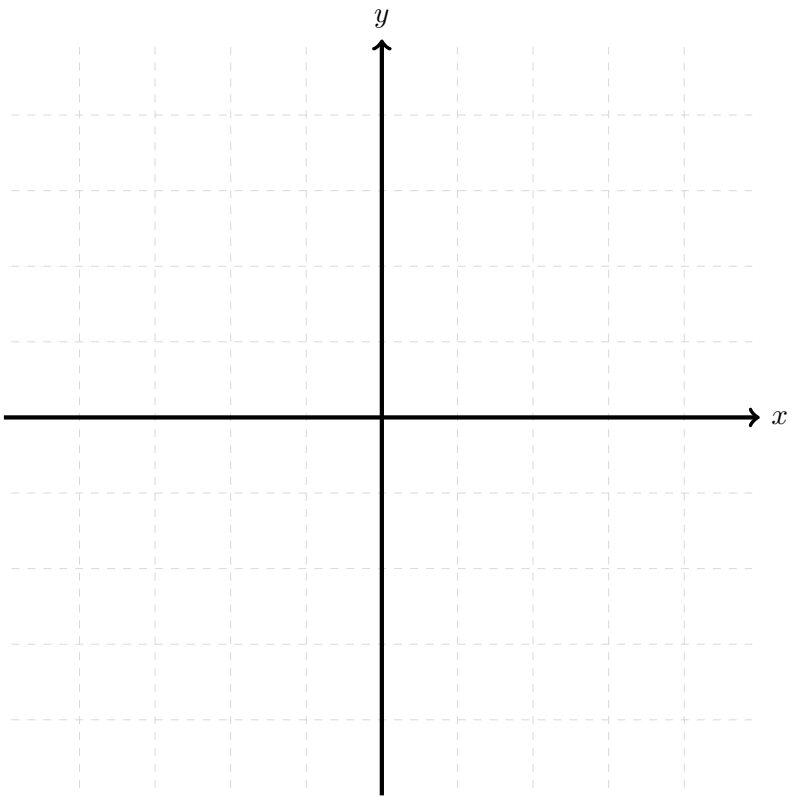
**If one of the following happens**:

- You turn in the Exam blank.
- You never take the Exam and do not have an appropriate reason for a make-up.
- It was suspected that the student cheated on the Exam.

Your grade for the Exam will be recorded as a zero.
**Read all directions carefully and write your answers in the space provided. To receive full credit, you must show all of your work.**

The questions on this Exam are from the OpenStax Textbook Algebra Trigonometry by Jay Abramson, and MyOpenMath

1. (4 points) For the angle $\frac{7\pi}{5}$, graph the angle in standard position.




2. (6 points) Angles Conversion
   (a) Convert $\frac{14\pi}{5}$ to degrees.

   (b) Convert $180^o$ to radians.

3. (6 points) Find an angle between $0^o$ and $360^o$ and is **coterminal** with a standard position angle measuring $1720^o$.

4. (6 points) In a circle of radius 7 miles, find the length of the arc that subtends a central angle of 1 **radians**. Answer in miles.

5. (6 points) A sector of a circle has a central angle of $30^o$ . Find the area of the sector if the radius of the circle is 9 cm. Answer in appropriate unit of measurement.

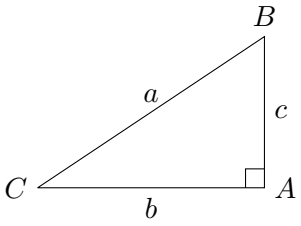
6. (6 points) A truck with 48-in.-**diameter** wheels is traveling at 60 $mi/h$.
   (a) Find the **angular speed** of the wheels in $rad/min$:

   (b) How many **revolutions per minute** do the wheels make?

7. (6 points) What is the height of a right triangle with an angle that measures 60 degrees and a base of 12 adjacent to the 60 degree angle?

**CHOOSE ONE PROBLEM FROM** 8 **and** 9. ANSWER ONLY ONE OF THEM

8. (6 points)




Suppose c=56 and a=65 .

Find an exact value (report answer as a fraction).**You will need to determine the length of the missing side first.**

$\sin C$ =

$\cos C$=

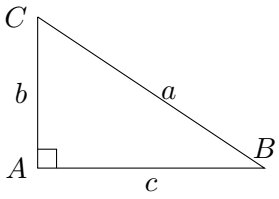
$\tan C$=

$\sec C$=

$\csc C$=

$\cot C$=

9. (6 points)




Note: Triangle may not be drawn to scale.

Suppose $b = 39$ and $c = 80$ and $a = 89$ .

Find an exact value (report answer as a fraction):

$\sin B$=

$\cos B$=

$\tan B$=

$\sec B$=

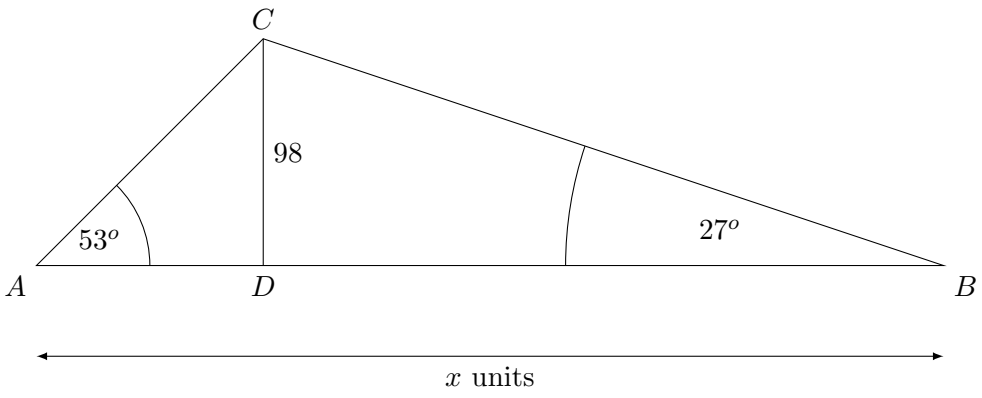
$\csc B$=

$\cot B$=

10. (6 points) The angle of elevation to the top of a Building in New York is found to be 5 degrees from the ground at a distance of 2 miles from the base of the building. Using this information, find the height of the building. **Round to the tenths**. Hint: 1 mile = 5280 feet. Answer using appropriate units of measurement.

11. (6 points) A 28-ft ladder leans against a building so that the angle between the ground and the ladder is $77^o$. How high does the ladder reach on the building? Answer using appropriate units of measurement.**Round to the tenths**

12. (6 points) Find $x$ correct to 2 **decimal places**. NOTE: The triangle is NOT drawn to scale.



13. (6 points) If $\theta = \frac{11}{6}\pi$, find

**Give exact values. No decimals allowed!**

$\sin\theta =$

$\cos\theta =$

14. (6 points) Compute the exact value of each of the following **(No decimals allowed)**:

$\sin(-855^o) =$

$\cos(-855^o) =$

$\tan(-855^o) =$

15. (6 points) The reference angle of 233 degrees is _____ degrees.

The reference angle of 327 degrees is _____ degrees.

The reference angle of $-122$ degrees is _____ degrees.

**CHOOSE ONE PROBLEM FROM 16 AND 17**. ANSWER ONLY ONE OF THEM

16. (6 points) If $\theta = \frac{-19\pi}{6}$ , then find **exact values**(**NO DECIMALS**) for the following:

$\sec\theta$ equals _____

$\csc\theta$ equals _____

$\tan\theta$ equals _____

$\cot\theta$ equals _____

17. (6 points) If $\theta = \frac{-17\pi}{4}$ , then find the exact values for the following:

    $\sec\theta$ equals _____

    $\csc\theta$ equals _____

    $\tan\theta$ equals _____

    $\cot\theta$ equals _____

18. (6 points) If $\theta = 7\pi$ , then find **exact values**(**NO DECIMALS**) for the following: If trig function is not defined for $7\pi$, then write **DNE**

    $\sec\theta$ equals _____

    $\csc\theta$ equals _____

    $\tan\theta$ equals _____

    $\cot\theta$ equals _____

    **CHOOSE ONE PROBLEM FROM** 19 **and** 20. ANSWER ONLY ONE OF THEM

19. (6 points) Given that the point $(-12, -5)$ is on the terminal side of an angle, $\theta$ , find exact values of the following:

    $\sin\theta$= _____

    $\cos\theta$= _____

    $\sec\theta$ = _____

    $\csc\theta$ = _____

    $\tan\theta$ = _____

    $\cot\theta$ = _____

20. (6 points) If $\sin\theta = -\frac{2}{5}$, and $\theta$ lies is in quadrant $IV$ , then $\sin\theta$= _____

    $\cos\theta$= _____

    $\sec\theta$ = _____

    $\csc\theta$ = _____

    $\tan\theta$ = _____

    $\cot\theta$ = _____