

Summer Honors Work Packet

Course Title: Honors Trigonometry/Pre-Calculus

Teacher: Mr. Fochtman

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Please Note: The summer assignment will be posted on the district website under a Summer Assignments Weebly Tab. This assignment will be submitted at the beginning of the upcoming school year.

Estimated Time for Completion (Approximate): 5-8 Hours

Objectives: "We Will": * Solve applied problems relating to key geometry concepts; * Solve right triangles using the six basic trigonometric functions; * Convert between degrees and radians for a given angle; * Solve applied problems using the unit circle; * Find exact values of trigonometric functions; * Analyze coordinates of angles that are drawn in Standard Position; * Graph linear systems; * Solve quadratic equations and find the six trig functions for these angles

Description of Activity: Students will solve applied problems using the above objectives/learning targets. Students will complete a pre-test consisting of multiple choice and short answer questions relating to the "Big Ideas" of Chapter 4 in Honors Trigonometry. These topics will also relate to Chapter P and Chapter 1 of the Pre-Calculus component of the course. These types of questions will appear on the first larger Unit Exam of the year by the end of the first week/middle of the second week of school.

Method(s) of Assessment: Students will complete this pre-test. We will clarify some of the questions by having students present some of their solutions the first week of school and using in-class discussions/questioning strategies. We will also take an exam on the algebraic material toward the end of the first week of school or the beginning of the second week of school.

Impact on 1st Quarter Grade: This assignment will involve a 20 point formal grade that will be included in the 1st Quarter Grade. We will also take a 75-100 Point exam on this material after we examine it in class that will contribute to nearly a $\frac{1}{4}$ of the first nine weeks grade. This pre-test corresponds to the pre-requisite knowledge of the learning targets in Chapter 4 and Chapter P, which form the foundation of everything that we do in Honors Trig/Pre-Calculus.

Due Date: This assignment should be completed and returned to your instructor on the first day of school. The exam on all of this material will tentatively occur the second week of school. Do not procrastinate by waiting until the last week of summer to complete this assignment!!

Honors Trig/Pre-Calc Summer Assignment

Name: _____

Date: _____

1. In right triangle ABC , if $m\angle C = 90$ and $\sin A = \frac{3}{5}$, $\cos B$ is equal to

A. $\frac{3}{5}$ B. $\frac{4}{5}$ C. $\frac{3}{4}$ D. $\frac{4}{3}$

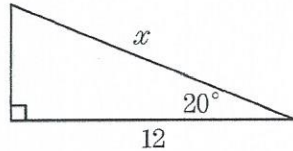
2. Which equation can be used to find the value of x in the right triangle shown?

A. $\cos 20^\circ = \frac{x}{12}$

B. $\sin 20^\circ = \frac{12}{x}$

C. $\cos 20^\circ = \frac{12}{x}$

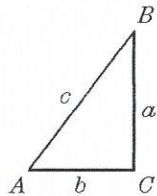
D. $\cos 70^\circ = \frac{x}{12}$



3. In the accompanying diagram of right triangle ABC , $\angle C$ is a right angle. Which equation is valid for $\triangle ABC$?

A. $\cos A = \frac{c}{b}$ B. $\tan A = \frac{b}{a}$

C. $\sin A = \frac{a}{c}$ D. $\cos B = \frac{a}{b}$



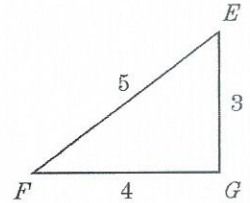
4. In the accompanying diagram, what is $\sin E$?

A. $\frac{3}{4}$

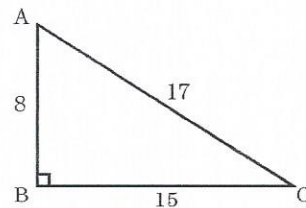
B. $\frac{4}{3}$

C. $\frac{3}{5}$

D. $\frac{4}{5}$



5. In the accompanying diagram of right triangle ABC , $\angle B$ is a right angle, $AB = 8$, $BC = 15$, and $CA = 17$.

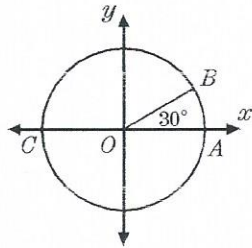


What ratio is equal to $\frac{8}{17}$?

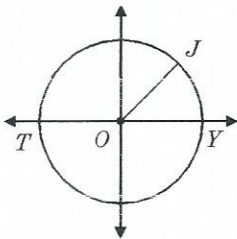
A. $\sin A$ B. $\sin C$ C. $\cos C$ D. $\tan A$

6. In the accompanying diagram of circle O , COA is a diameter, O is the origin, $\overline{OA} = 1$, and $m\angle BOA = 30$. What are the coordinates of B ?

- A. $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$
 B. $\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
 C. $\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$
 D. $\left(\frac{\sqrt{2}}{2}, \frac{1}{2}\right)$



7. In the accompanying diagram of circle O , point O is the origin, $YO = 1$, $JO = 1$, and \overline{TOY} is a diameter. If the coordinates of point J are $\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$, how many degrees are in the $m\angle JOY$?



8. Express $\frac{3\pi}{4}$ radians in degrees.

9. Express in degree measure an angle of $\frac{2\pi}{5}$ radians.

10. Which expression is equivalent to $\sin(-120^\circ)$?

- A. $\sin 60^\circ$ B. $-\sin 60^\circ$
 C. $\cos 30^\circ$ D. $-\sin 30^\circ$

11. Which is equal in value to $\sin 180^\circ$?

- A. $\tan 45^\circ$ B. $\cos 90^\circ$
 C. $\cos 0^\circ$ D. $\tan 90^\circ$

12. Which expression is equivalent to $\sin 150^\circ$?

- A. $\cos 30^\circ$ B. $\sin 30^\circ$
 C. $\sin(-30^\circ)$ D. $-\sin 30^\circ$

13. The expression $\sin 240^\circ$ is equivalent to

- A. $\sin 60^\circ$ B. $\cos 60^\circ$
 C. $-\sin 60^\circ$ D. $-\cos 60^\circ$

14. If $\sin 43^\circ = \frac{y}{20}$, what is the value of y to the nearest tenth?

Trig Summer Assignment

Find the value of each. Round your answers to the nearest ten-thousandth.

1) $\sin 66^\circ$

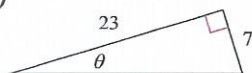
2) $\tan 30^\circ$

3) $\tan 18^\circ$

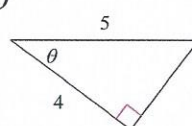
4) $\tan 26^\circ$

Find the value of the trig function indicated.

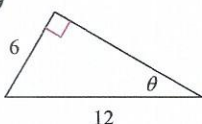
5) $\cos \theta$



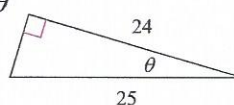
6) $\sin \theta$



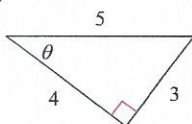
7) $\sin \theta$



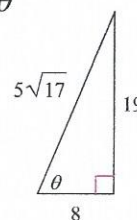
8) $\sin \theta$



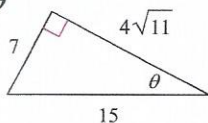
9) $\cos \theta$



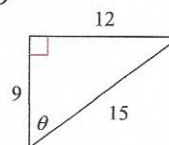
10) $\cos \theta$



11) $\tan \theta$



12) $\cos \theta$



Solve each equation by completing the square.

13) $p^2 - 8p - 96 = 0$

14) $k^2 - 4k - 60 = 0$

15) $n^2 + 4n - 60 = 0$

16) $x^2 + 12x + 16 = 0$

Solve each equation by factoring.

17) $a^2 = -7a - 10$

18) $n^2 = -3n + 18$

19) $k^2 + 24 = -10k$

20) $x^2 + 12 = -8x$

21) $5n^2 - 26n + 24 = 0$

22) $5x^2 + x - 4 = 0$

Factor each completely.

23) $7m^3 - 8m^2 + 21m - 24$

24) $24p^3 - 8p^2 - 9p + 3$

25) $3n^3 - 5n^2 + 24n - 40$

26) $m^4 + 14m^2 + 49$

27) $a^4 - 49$

28) $x^4 - x^2 - 20$

29) $x^4 + 3x^2 - 28$

30) $10x^4 - 3x^2 - 1$

31) $125x^4 + 100x^2 - 60$

32) $125x^3 + 216$

33) $27 - u^3$

34) $64u^3 + 1$

35) $x^3 + 1$

Divide.

36) $(3m^3 + 34m^2 + 83m + 29) \div (m + 8)$

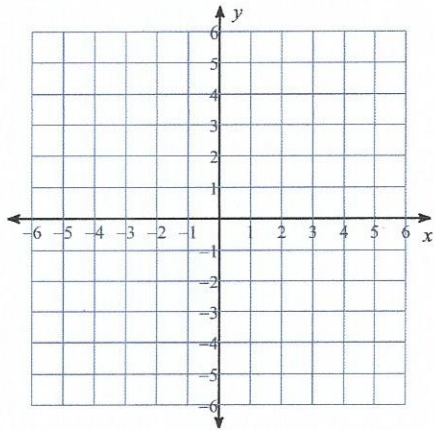
37) $(10r^3 - 28r^2 + 2r - 14) \div (r - 3)$

38) $(x^3 + x^2 - 36x + 36) \div (x + 7)$

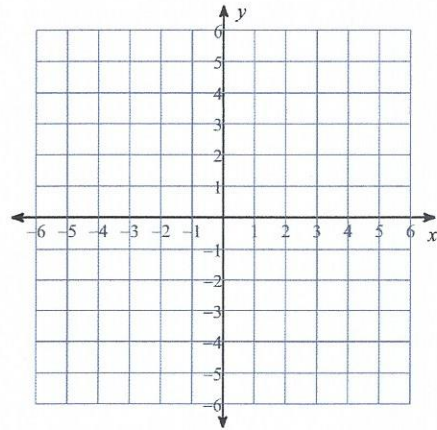
39) $(6n^3 - 52n^2 + 69n + 6) \div (n - 7)$

Sketch the graph of each line.

40) $2x - y = 0$

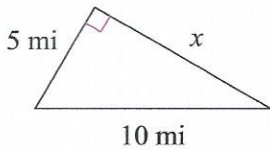


41) $2x + 3y = 6$

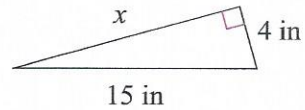


Find the missing side of each triangle. Leave your answers in simplest radical form.

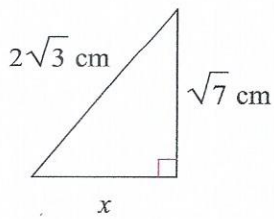
42)



43)

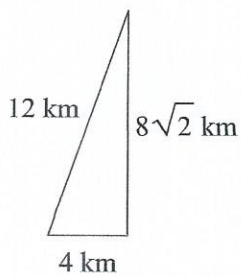


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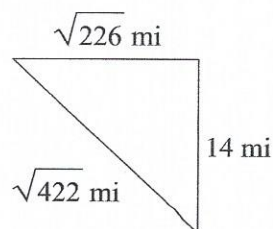


State if each triangle is a right triangle.

45)

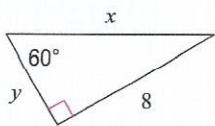


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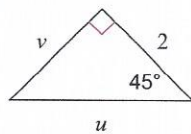


Find the missing side lengths. Leave your answers as radicals in simplest form.

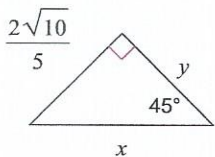
47)



48)



49)



50)

