

Clifton High School Mathematics Summer Workbook Pre- Calculus H

The questions/problems in this booklet have been compiled by past and present CHS mathematics teachers based on open resources from publishers and math websites such as NCTM.

Completion of this summer work is required for the first day of the school year.

Date Received: _____ Date Completed: _____

Student Signature: _____

Parent Signature: _____

Please read the note to parents following this page.

Dear Parents and Guardians,

Attached is the mathematics workbook that your child is required to work on over the summer. Our goal is that your child will continue to work on appropriate math skills and concepts to maintain the progress made during the previous grade. This work will also help prepare your child for the next level. We have included a list of vocabulary words to define and several review sheets and problems that require written explanations, as well as web sites that can be helpful with the review problems. Please note that directions and sample problems are offered in each section for reference and review.

Please sign to indicate the date the packet was received and the date it was completed. Encourage your child to work through the booklet a section at a time during July and August.

Your child's math teacher will collect the workbook during the first week of school. Giving time and thought to this work will help to maximize your child's grade on the test given in September. The test will be based on the work and will count as the first test of the school year. The grade will be determined as follows:

- Completion of the workbook on time will count as 20% of the grade.
- Performance on the test will count as 80% of the grade.

Thank you for your cooperation.

Sincerely,

Michael Doktor
Principal

Mary Campbell
Supervisor of Mathematics 9-12

Show all work on a separate sheet of lined paper. Your work should be numbered, neat and organized. All answers should be given in simplest form and placed on the answer sheets provided. Be sure to attach your work behind the answer sheets.

1. Simplify the following fractions:

a) $\frac{8\pi}{36}$

b) $-\frac{3\pi}{51}$

c) $\frac{98\pi}{7}$

d) $-\frac{12\pi}{130}$

e) $\frac{3\pi/7}{1/2}$

f) $\frac{-\frac{4}{3}\pi}{10}$

g) $\frac{5\pi}{6/11}$

2. Simplify the following: [Hint: Find Common Denominators]

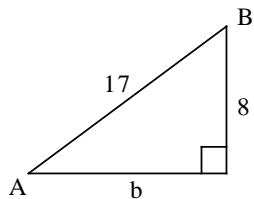
a) $\frac{11\pi}{4} - 2\pi$

b) $2\pi + \frac{5\pi}{3}$

3. Convert $55 \frac{\text{miles}}{\text{hour}}$ to $\frac{\text{inches}}{\text{second}}$ (*1 mile = 5,280 feet)

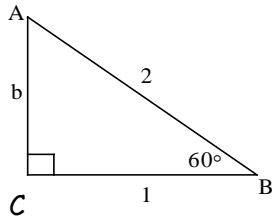
4. Convert $82 \frac{\text{yards}}{\text{minute}}$ to $\frac{\text{feet}}{\text{second}}$

5. Given:



- a) find **b** to 2 decimal places
- b) find **sin A** as a simplified fraction
- c) find **cos B** as a simplified fraction

6. Given:



- a) find **b** as a simplified radical
- b) find **tan A** as a simplified radical
- c) find **sin 60°** as a simplified radical
- d) find **m ∠A**

7. Simplify the following radical expressions: [Hint: Rationalize using radicals/conjugates]

a) $\frac{3}{\sqrt{5}}$

b) $\frac{2\sqrt{2}}{\sqrt{6}}$

c) $\frac{\sqrt{8}}{3}$

d) $\frac{5}{2+\sqrt{7}}$

e) $\frac{4}{5-\sqrt{3}}$

8. Given $a^2 = c^2 - d^2 + 2cdb^2$ solve for b

9. Graph $y = x^2 + 2$ [Hint: An x-y chart might be helpful]

- a) Identify this conic section.
- b) State the domain.
- c) State the range.
- d) Is this a function? Explain.

10. Factor the following completely:

a) $xy + x^2$

b) $1 - x^2$

c) $x^2 + xy + y^2$

d) $x^2 - y^2$

11. Simplify the following: [Hint: Find Common Denominators]

a) $\frac{1}{x} + \frac{1}{y}$

b) $\frac{3}{x^2y} - \frac{5}{xy}$

12. Solve the following:

a) $1 - x^2 = \frac{1}{9}$

b) $4x^2 - 3 = 0$

c) $x\sqrt{3} + 1 = 0$

d) $x\sqrt{2} - 1 = 0$

e) $2x^2 + x = 0$

f) $2x - \sqrt{3} = 0$

13. Simplify:

a) $\sqrt{32}$

b) $-\sqrt{27}$

c) $\frac{\sqrt{50}}{5}$

14. Simplify the following:

a) $(3mn^2)^3$

b) $(-2m^2n)^{-3}$

c) $\frac{(5mn)^2}{(2mn)^{-1}}$

15. Graph $y = 2^x$ (choose at least 5 x-values that consist of negative, zero, and positive numbers)

16. Given the following sequence, list the next three terms.

a) 3, 6, 9, . . .

b) $\frac{2}{3}, \frac{1}{3}, \frac{1}{6}, \dots$

c) -5, -1, 3, . . .

d) $-\frac{5}{8}, \frac{15}{16}, -\frac{45}{32}, \dots$

e) .2, .15, .1125, . . .

Summer Workbook Answer Sheet Name: _____ Date: _____

Show All Work On Lined Scrap! Scrap paper must be stapled behind answer sheets.

1. a) _____ b) _____ c) _____ d) _____

e) _____ f) _____ g) _____

2. a) _____ b) _____

3. _____

4. _____

5. a) _____ b) _____ c) _____

6. a) _____ b) _____ c) _____ d) _____

7. a) _____ b) _____ c) _____ d) _____ e) _____

8. _____

9.a) _____ b) _____ c) _____ d) _____

10.a) _____ b) _____ c) _____ d) _____

11.a) _____ b) _____

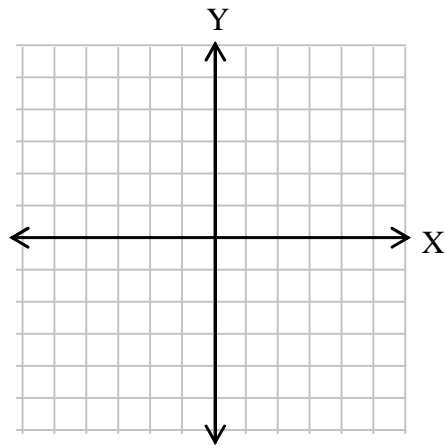
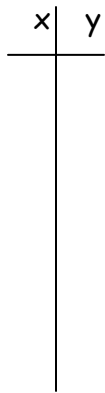
12.a) _____ b) _____ c) _____

d) _____ e) _____ f) _____

13.a) _____ b) _____ c) _____

14.a) _____ b) _____ c) _____

15.



16.a) _____ b) _____ c) _____

d) _____ e) _____