Name: College Algebra Summer Assignment

Part A: Basic Math: In order to receive credit, you must show all work, and your work and final answer must be correct. If you just write an answer, you will not receive credit. Calculators are **NOT** permitted on this section!

1. Divide: Show all work! Express your final answer in terms of a remainder (if there is one) – No decimals: $4840 \div 90$

2. Simplify: $9^3 \div 81 - 2$

3. Multiply and Simplify: $\frac{2}{5} \cdot 35$

4. Multiply and simplify: $\frac{3}{10} \cdot \frac{43}{100}$

5. Divide and simplify: $\frac{7}{2} \div \frac{49}{4}$

6. Divide and simplify: $\frac{7}{4} \div 7$

7. Add and simplify: $\frac{7}{9} + \frac{5}{6}$

8. Subtract and simplify: $\frac{7}{10} - \frac{13}{25}$

9. Divide. Write a mixed numeral for the answer (if possible): $499 \div 7$

10. Add: Write the answer as a mixed numeral (if possible): $8\frac{1}{9} + 7\frac{2}{5}$

11. Subtract: Write the answer as a mixed numeral (if possible) : $9\frac{2}{5} - 5\frac{1}{3}$

12. Subtract: Write the answer as a mixed numeral (if possible): $22\frac{2}{15} - 17\frac{8}{9}$

13. Multiply: Write the answer as a mixed numeral (if possible): $17\frac{4}{7} \cdot \frac{1}{4}$

14. Multiply: Write the answer as a mixed numeral (if possible): $20\frac{2}{5} \cdot 12\frac{1}{6}$

15. Divide: Write the answer as a mixed numeral (if possible): $12 \div 1\frac{1}{13}$

16. Divide: Write the answer as a mixed numeral (if possible): $7\frac{1}{6} \div 1\frac{6}{7}$

Part B: Elementary Algebra: In order to receive credit, you must show all work, and your work and final answer must be correct. If you just write an answer, you will not receive credit. Calculators **ARE** permitted on this section.

1. Evaluate the expression: $4a^2 - 4ab + b^2$, when a = 2 and b = 5

2. Simplify: $2x^2(-3x^2)^3$

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3. Simplify: $\left(\frac{2x^{-5}y^2}{8w}\right)^{-2}$

4. Solve: $\frac{1}{4}x - \frac{5}{8} = \frac{3}{8}$

5. Solve: 8(x – 2) – 5(x + 4) = 20 + x

6. Solve for *m*: $F = \frac{mv^2}{r}$

7. Solve for *P*: *A = P + Prt*

8. Solve: $\frac{6}{x-5} = \frac{4}{x}$

9. Solve: $2|x - 3| = 5$

10. Solve: $3 - \frac{x}{x-4} = \frac{-4}{x-4}$

11. Simplify: $\frac{x^3+x^2y-6xy^2}{x^2-2xy}$

12. Simplify: $\frac{4x^2-1}{2x^2+5x-3}$

13. Solve: $\frac{2}{3} + \frac{x}{5} < \frac{4}{15}$

14. The sales tax rate in Wilson County is 6.75%. Suppose total price of an item that you bought in Wilson County (including tax) is $14.93, what is the price before tax? (Round your answer to the nearest hundredth)

15. Solve: $2x(10x + 8) = -3(x + 1)$

16. A 36 foot long tube is cut into two pieces with ratio 4:5. Find the length of the shorter piece.

17. A large square pizza has 49 pieces (square slices). John, Jack and Jane ate all the pieces in the ratio 4:2:1 respectively. How many pieces did Jack eat?

18. Solve: $\sqrt{1-2x} + 1 = 3$

19. Find the equation of the straight line passing through the points (2,-4) and (1,0) (in slope-intercept form and Standard form)

20. Determine the x and y intercepts of the graph of 7x – 5y = 35

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21. Solve the system: $\begin{cases} 3x - 5y = -4 \\ 3x - y = 4 \end{cases}$

22. Consider the circle given by the equation $(x-2)^2 + (y+1)^2 = 25$. Find the center and radius.

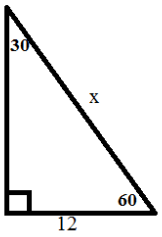
23. Given: $f(x) = 2x^2 - 4x + 1$, find the vertex.

24. Simplify and express in the form *a + bi*: *(-2 + i)(3 + 2i)*

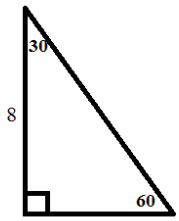
25. Simplify and express in the form $a + bi$: $\frac{-4i}{1+i}$

Part C: Trigonometry Review: All answers must be exact, in simplest radical form.

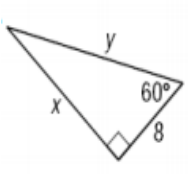
1. Find the value of x in the triangle pictured below.



2. Find the length of the shorter leg in the triangle pictured below:



3. Find the value of *x* and *y.*



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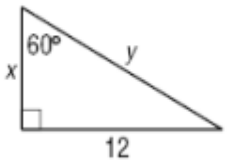
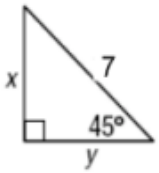
Part C: Trigonometry Review: All answers must be exact, in simplest radical form.

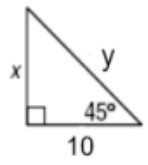
4. Find the value of *x* and *y.*



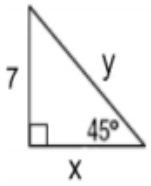
5. Find the value of *x* and *y.*



6. Find the value of *x* and *y.*

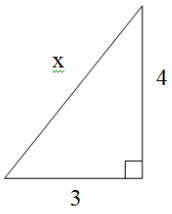


7. Find the value of *x* and *y.*



Find the length of the missing side (in simplest radical form if needed).

8.



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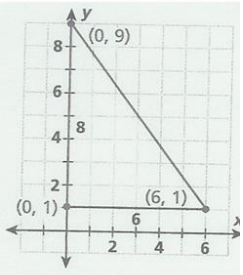
9. Find the length of the hypotenuse:



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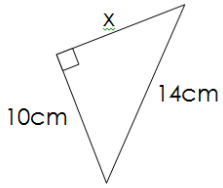

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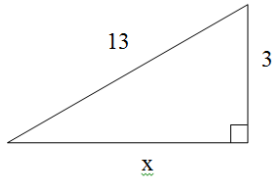

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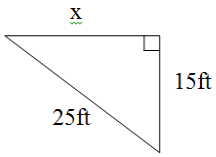

13.