Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**GT/PAP Algebra 2 Summer Assignment**

Please complete all your work on this assignment – you must **show all of your work** to receive credit! Write your final answer in the blank provided.

*\*This will be due the first 2 days of school at the beginning of class. There will be 10 points deducted per block late.\**

1. **Simplify the following fractions. *Remember – you must show your work. If you type this into the calculator and write your answer down, you will \*not\* receive credit.***

Answers

 1. \_\_\_\_\_

 2.

 3.

 4.

 5.

 6.

 7.

 8.

 9.

 10.

 11.

 12.

1. $\frac{4}{9}\*\frac{7}{4}$ 2. $\frac{1}{2}÷\frac{8}{7}$

3. $\frac{\frac{-1}{2}}{\frac{5}{4}}$ 4. $\frac{2}{\frac{3}{2} - \frac{4}{3}}$

5. $\frac{\frac{1}{4}+\frac{5}{4}}{4}$ 6. $\frac{\frac{4}{5}}{\frac{2}{25} - \frac{5}{16}}$

1. **Simplify the following expressions.**

7. $6x-2y-3x+2y$ 8. $4\left(14c-10d\right)-6(d+4c)$

9. $8xy-7y-(3-6y)$ 10. $\frac{1}{2}\left(17-4x\right)-\frac{3}{4}(6-16x)$

1. **Solve the following equations for the variable.**

11. $3y+16=22$ 12. $\frac{1}{2}x-2=\frac{1}{3}x$

13. $4x+7=9x-13$ 14. $\frac{4}{5}x-7=16$

Answers

 13. \_\_\_\_\_

 14.

 15.

 16.

 17.

 18.

 19.

 20.

 21.

 22.

15. $-7x=15-2x$ 16. $10x+6=8-2(x+6)$

17. $24-\frac{x}{3}=6$ 18. $34-10w=6w+2$

19. $3\left(x-4\right)+4\left(x+8\right)=10-5(x-3)$ 20. $\frac{2}{3}x-\frac{1}{4}=\frac{1}{6}x-\frac{1}{9}$

1. **Solve the following word problems.**

21. A farmer plants corn and wheat on a 180-acre farm. The farmer wants to plant three times as many acres of corn as wheat. Write a system of linear equations that represents this situation. How many acres of each crop should the farmer plant?

22. You have $32 to spend on supplies for your science fair project. If you buy two plants for experiments, you will have $18 left for other supplies. How much is each plant?

1. **Solve each equation for the indicated variable.**

Answers

 23. \_\_\_\_\_

 24.

 25.

 26.

 27.

 28.

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 30.

 31.

 32.

 33.

 34.

 35.

 36.

 37.

 38.

23. $4x+3y=15;for y$ 24. $V=\frac{1}{3}πr^{2}h;for r$

25. $PV=nRT;for R$ 26. $F=G\frac{mM}{r^{2}};for r$

27. $P=2l+2w;for w$ 28. $V=πr^{2}h;for h$

29. $\frac{x}{r}-h=4;for x (r\ne 0)$ 30. $\frac{1}{x}+a=b;for x (x\ne 0)$

1. **Factor each quadratic expression.**

31. $x^{2}+9x+14$ 32. $x^{2}-10x-75$

33. $x^{2}+x-20$ 34. $x^{2}-29x+100$

35. $x^{2}-5xy+6y^{2}$ 36. $x^{2}-21x+54$

37. $x^{2}-30x+225$ 38. $x^{2}+20x+91$

1. **Write the equation of the line described.**

Answers

 39. \_\_\_\_\_

 40.

 41.

 42.

 43.

 44.

 45.

**Write the equation in slope-intercept form.**

39. The line with a slope of $\frac{5}{3} $and a y-intercept of $-2$.

40. The line passing through $(-4, 6)$ and parallel to the line $y=3x+8$.

41. The line passing through $(1, 2) $and perpendicular to the line $y=4x+3$.

42. The line with an x-intercept of $-1 $and a y-intercept of $6$.

43. The line passing through $(8, 3)$ and $(2, -1)$.

44. The line with a y-intercept of -6 and parallel to the line $5x+4y=1$.

45. The horizontal line through (5, -7).

1. **Graph the following equations.**

46. $y=-3x+1$ 47. $5x+2y=4$



48. $y=\frac{1}{2}x-4$ 49. $-2x-3y=9$



50. $y=x$ 51. $x=3$



BONUS:

Given $f\left(x\right)=x^{2}+2x-9$ and $g\left(x\right)=(x+1)^{2}$, evaluate $f\left(a+1\right)+g(a+1)$.