ALGEBRA II & TRIGONOMETRY SUMMER WORK GFS

Please do your work on a separate sheet of paper. Bring completed work with you to class at the start of the year. Do your best. Know that you will have an opportunity to ask questions if there are problems that you don't know how to do or don't remember fully. There will be a diagnostic assessment in the first few weeks of class, so that your teacher can assess your understanding. The answers are at the end of the document, so check as you go.

1. Put $2x+3y=12$ in slope-intercept form.

2. Put $-3x+4y=24$ in slope-intercept form.

3. Put $5x+4y=16$ in slope-intercept form.

4. You make 15 dollars an hour at one job and 26 dollars an hour at another and need to make a total of 2000 dollars in the month. Write an inequality to model this situation.

5. A school band is selling lollipops for $1.50 each and candy bars for $2.25 they need to raise $1600. Write an inequality to model this situation.

6. A factory is making widgets. Type A widgets cost $4 to produce. Type B widgets cost $5 to produce. The factory has $800 to spend on production of Type A and Type B widgets combined. Write an inequality to model this situation.

7. Simplify $\frac{2x-2}{x-1}$.

8. Simplify $\frac{3x-3}{x^2-1}$

9. Simplify $\frac{6x^2+7x+2}{2x+1}$

10. Simplify $\frac{4mn}{5m^2}\cdot\frac{3m}{2n}$

11. Simplify $\frac{8mn^2}{2m^3}\cdot\frac{n^6}{mn^2}$

12. Simplify $\frac{7m^3n^2}{14m} \cdot \frac{2m^2n}{n}$

13. Simplify $\frac{2}{x} + \frac{4}{3x}$

14. Simplify $\frac{2}{3x} + \frac{1}{4x}$

15. Simplify $\frac{6}{5x} + \frac{3}{7x^2}$

16. Graph a line with slope $-\frac{1}{3}$ that crosses through (1, 5)

17. Graph a line with slope 2 that crosses through (2, -3)

18. Graph a line with slope $\frac{1}{6}$ that crosses through (0, 0)

19. Simplify $\left(6x^3 + 2x\right) \div \left(-2x^2\right)$

20. Simplify $(5x^4 - 10) \div (5x)$

21. Solve $\frac{x}{(2x+5)} = \frac{-5}{x}$

22. Solve $\frac{1}{-6} = \frac{(2x+6)}{x^2}$

23. Solve $\frac{-1}{(6-x)} = \frac{3}{x^2}$

24. Simplify $\left(\frac{3x^3y^{-2}}{x^2y}\right)^{-3}$

25. Simplify $\left(\frac{9x^2y^3}{3x^{-1}y^2}\right)^{-2}$

26. Simplify $\left(\frac{12x^5y^2}{2x}\right)^3$

27. A car travels *m* miles in *h* hours when the car travels at 25 miles per hour. Write an equation that models this.

28. A man gets paid *d* dollars for working *h* hours. His wage is $15.15 per hour. Write an equation that models this.

29. If a sequence is defined by $a_n = -2(2)^{n-1}$ what is the 6th term of this sequence?

30. If a sequence is defined by $a_n = 16\left(\frac{1}{2}\right)^{n-1}$ what is the 4th term of this sequence?

31. If a sequence is defined by $a_n = 3(-2)^{n-1}$ what is the 3rd term of this sequence?

32. What is the slope of $2x + 3y = 12$?

33. What is the slope of $5x - 4y = 20$?

34. What is the slope of $-2x + 5y = 20$?

35. If you walk for 90 minutes at a speed of 3.5 miles per hour, how far will you walk?

36. If you drive for 45 minutes at a speed of 65 miles per hour, how far will you drive?

37. If you fly for 150 minutes at a speed of 575 miles per hour, how far will you fly?

38. Solve the system $\begin{cases} 2x + y = 4 \\ y = -3x + 5 \end{cases}$

39. Solve the system $\begin{cases} 4x + 2y = 28 \\ y = 2x - 6 \end{cases}$

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

41. Factor $4x^3 - 16x$.

42. Factor $3x^2 + 3x - 36$.

43. Factor $2x^2+8x+8$

44. Complete the table for $y = 2(3)^{x+1}$

x	y
0	
1	
2	
3	

45. Complete the table for $y = 64\left(\frac{1}{2}\right)^{x+1}$

x	y
0	
1	
2	
3	

46. Complete the table for $y = -(2)^{x-1}$

x	y
0	
1	
2	
3	

47. Multiply $(2.7\times10^{3})(3.4\times10^{2})$. Give the answer is scientific notation.

48. Multiply $(6.2\times10^{4})(2.1\times10^{-3})$. Give the answer is scientific notation.

49. Multiply $(7.4\times10^{2})(1.1\times10^{4})$. Give the answer is scientific notation.

50. Simplify $\sqrt{72}$

51. Simplify $\sqrt{45}$

52. Simplify $\sqrt{147}$

53. If the diagonal of a square is 4 meters how long is its side (give your answer in simplest radical form)?

54. If the side of an equilateral triangle is 12 centimeters how long is its altitude (give your answer in simplest radical form)?

55. If the altitude of an equilateral triangle is 36 centimeters how long is its side (give your answer in simplest radical form)?

56. Simplify $3x^{2}y^{4}\cdot 4x^{3}y^{-4}$

57. Simplify $12x^{2}y^{4}\cdot 2x^{-3}y^{2}$

58. Simplify $6x^{3}y^{-2}\div 3x^{2}y^{2}$

59. Solve $0.5x+9.1=2.28$

60. Solve $0.4x+3.6=2.64$

61. Solve $0.2x+3.4=9.6$

62. Solve $\frac{2}{3}x+4=8$

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

64. Solve $\frac{1}{7}x-6=-4$

65. Expand $(3x+1)^2$

66. Expand $(-4x-2)^2$

67. Expand $(2x-3)^2$

68. Factor $6x^2+5x-4$

69. Factor $8x^2+10x-3$

70. Factor $10x^2-11x-6$

71. Solve $x^2+x=6$

72. Solve $x^2+8x=-12$

73. Solve $6x^2+5x=4$

74. Graph $5x+2y=20$

75. Graph $6x-4y=24$

76. Graph $-3x+2y=18$

77. Write an equation in slope-intercept form that crosses through (-2,4) and (4,8).

78. Write an equation in slope-intercept form that crosses through (-1,6) and (5,-2).

79. Write an equation in slope-intercept form that crosses through (3,5) and (-4,6).

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80. Write an equation in slope-intercept form that crosses through (-1,4) and has a slope of 2.

81. Write an equation in slope-intercept form that crosses through (2,6) and has a slope of $\frac{1}{5}$.

82. Write an equation in slope-intercept form that crosses through (-1,7) and has a slope of $-\frac{2}{5}$.

83. Simplify $\frac{16}{8-2}\times(9-5)\div 4$

84. Simplify $3+9\cdot 6-2\div 1$

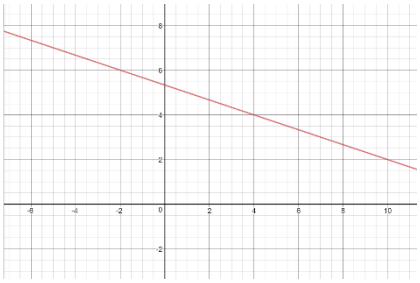
85. Simplify $(45-36)\cdot 2+14$

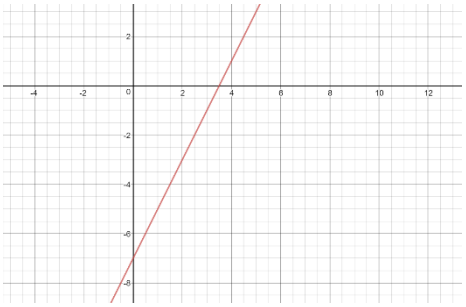
86. Simplify $9.8-2.3\div 2.5$

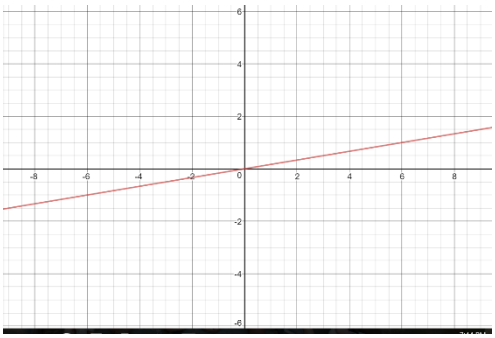
87. Simplify $2.7(3.2)+1.2$

88. Simplify $6.9\div 2.3-1.9$

Answers

1. $y = -\frac{2}{3}x + 4$
2. $y = \frac{3}{4}x - 6$
3. $y = -\frac{5}{4}x + 4$
4. 15x + 26y ≥ 2,000
5. 1.5l + 2.25c ≥ 1,600
6. 4a + 5b ≤ 800
7. 2
8. $\frac{2}{x+1}$
9. 3x+2
10. $\frac{6}{5}$
11. $\frac{4n^6}{m^3}$
12. m^4n^2
13. $\frac{10}{3x}$
14. $\frac{11}{12x}$
15. $\frac{42x+18}{35x^2}$
16. 

17. 

18. 

19. -3x$-\frac{1}{x}$

20. $x^3 - \frac{2}{x}$

21. x=-5

22. x=-6

23. x = -6 x=3

24. $\frac{y^9}{27x^3}$

25. $\frac{1}{3x^6y^2}$

26. $216x^{12}y^6$

27. $25h = m$

28. $15.15h = d

29. - 64

30. 2

31. 12

32. $-\frac{2}{3}$

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

34. $\frac{2}{5}$

35. 5.25 miles

36. 48.75 miles

37. 1,435.5 miles

38. (1,2)

39. (5,4)

40. (2,3)

41. 4x(x-2)(x+2)

42. 3(x+4)(x-3)

43. $2(x+2)^2$

44. y = 6, 18, 54, 162

45. y = 32, 16, 8, 4

46. y = $-\frac{1}{2}, -1, -2, -4$

47. 9.18 x 10^5

48. 1.302 x 10^2

49. 8.14 x 10^6

50. $6\sqrt{2}$

51. $3\sqrt{5}$

52. $7\sqrt{3}$

53. $2\sqrt{2}$

54. $6\sqrt{3}$

55. $12\sqrt{3}$

56. $12x^5$

57. $\frac{24y^6}{x}$

58. $\frac{2x}{y^4}$

59. x = - 13.64

60. x = - 2.4

61. x = 31

62. x = 6

63. x =8

64. x = 14

65. $9x^2 + 6x + 1$

66. $16x^2 + 16x + 4$

67. $4x^2 - 16x + 4$

68. (3x+4)(2x-1)

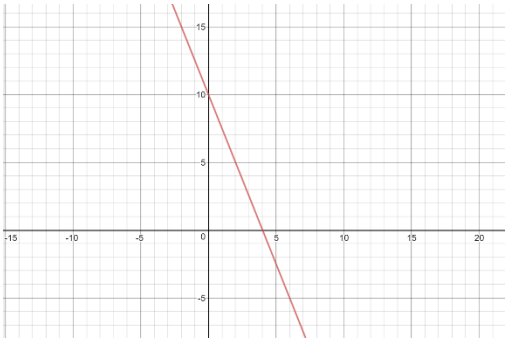
69. (2x+3)(4x-1)

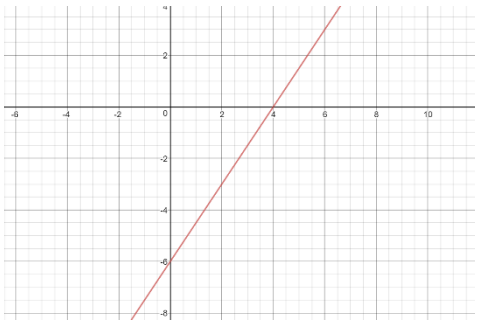
70. (2x-3)(5x+2)

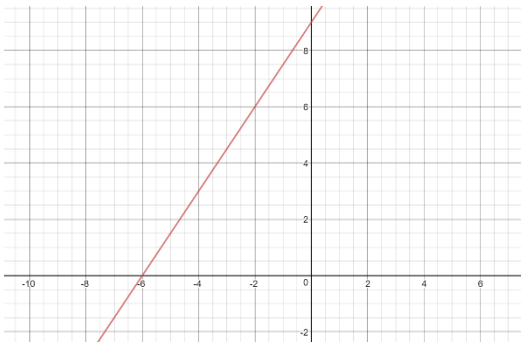
71. x=-3 x=2

72. x= -6 x= -2

73. x = - $\frac{4}{3}$ x = $\frac{1}{2}$

74. 

75. 

76. 

77. $y = \frac{2}{3}x + \frac{16}{3}$

78. $y = -\frac{4}{3}x + \frac{14}{3}$

79. $y = -\frac{1}{7}x + \frac{38}{7}$

80. $y = 2x + 6$

81. $y = \frac{1}{5}x + \frac{28}{5}$

82. $y = -\frac{2}{5} + \frac{28}{5}$

83. 2 2/3

84. 55

85. 32

86. 8.88

87. 9.84

88. 1.1