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Algebra 1 B Final Exam Review
Modules 14, 17, 18, 19, 21, 22, 9, 10, 8.1

1. Simplify: $(3x^2y^4)^3$

2. Simplify: $x^3y^5x^3y^4$

3. Simplify: $2^33^52^{-3}3^7$

4. Rewrite without a negative exponent: 4^{-3}

5. Simplify x^3x^{-7}

6. Simplify $(3x^4)^{-2}$

7. Simplify $(ab^2)^3(a^3b^2)^{-2}$

8. Simplify: $\frac{3^5}{3^2}$

9. Simplify: $\frac{a^5b^3}{a^2b^5}$

10. Simplify: $\frac{a^0b^{-3}}{a^2b^5}$

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11. 8^0

12. $\left(\frac{a^3b}{c^7p^{12}}\right)^0$

13. Write $3x + 12 - 5x^2$ in standard form. Identify the leading coefficient (LC).

14. Write $4x^2 - 12x - 2x^3 + 7$ in standard form. Identify the leading coefficient.

15. What is the degree of $3x^3$?

16. What is the degree of $7x^4y^2$?

17. Find the degree of the polynomial $7x^3 - 8x^4 + 10x^2 + 9x - 5$. Put it in standard form.

18. Find the degree of the polynomial $7x^3 + 2x^5 - 9x^6 + 14x - 2$. Put it in standard form.

19. Describe $7x^4 - 2x^2 + 3$ by the degree and number of terms

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20. Describe $7x^6 - 2x^9 + 3x + 4$ by the degree and number of terms

21. Describe $3x + 4$ by the degree and number of terms

22. Add $4p^3 + 3p - p^3 - 7$

23. Add $7x - 2 + 4x^2 - 3x + 7x^2$

24. Add. $(3x^3 - 4) + (x^3 - 7)$

25. Subtract. $(x^3 - 3x + 5) - (3x^2 + 4x - 3)$

26. Subtract. $(x^3 - 2x^2 + 9) - (3x^3 + 5x - 6)$

27. Multiply x^4y and $4x^2$

28. Multiply $3x^9y^4$ and $7x^3y$

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29. Multiply $(x + 3)(x - 4)$

30. Multiply $(x - 6)(x - 9)$

31. Multiply $(x + 10)(x + 3)$

32. Multiply $(3x - 2)(4x + 8)$

33. Multiply $(6x - y)(2x + y)$

34. Celeste has a garden that has a length of $x + 7$ feet and a width of $3x - 5$ feet. What is the area of the garden? $A = lw$

35. Rachel has a fence that has a length of $2x + 3$ feet and a width of $x + 7$ feet. What is the Perimeter of the garden?

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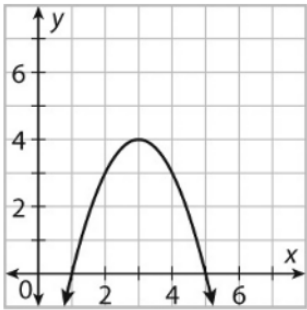
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36. Multiply $(x + 3)(2x^2 - 3x + 5)$

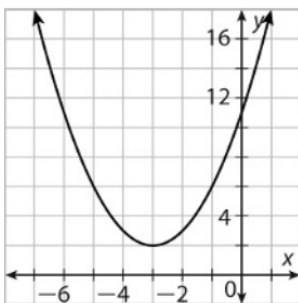
37. Multiply $(x - 2)(x^2 + 6x + 12)$

38. Multiply $(x + 5)(4x^2 + 3x + 1)$

39. What is the vertex of the quadratic function $f(x)$? Is it a maximum or a minimum?



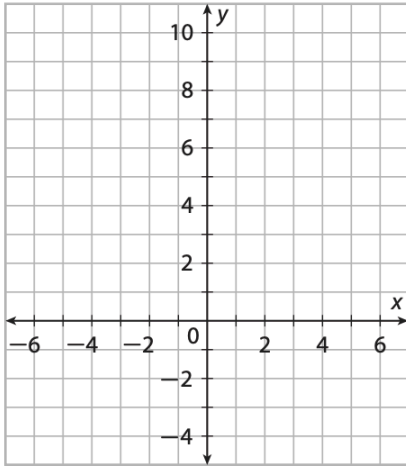
40. What is the vertex of the quadratic function $f(x)$? Is it a maximum or a minimum?



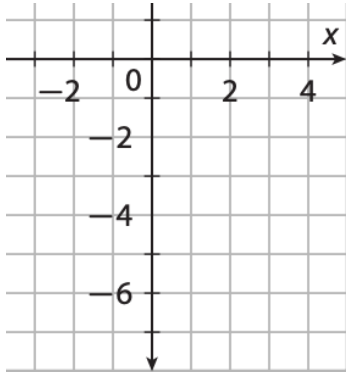
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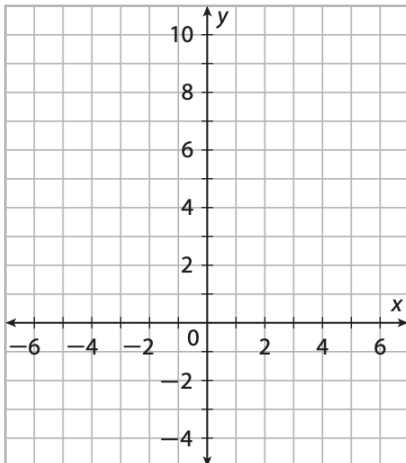
41. Graph the quadratic function $f(x) = (x + 1)^2 + 3$



42. Graph the quadratic function $f(x) = -(x - 2)^2 - 1$



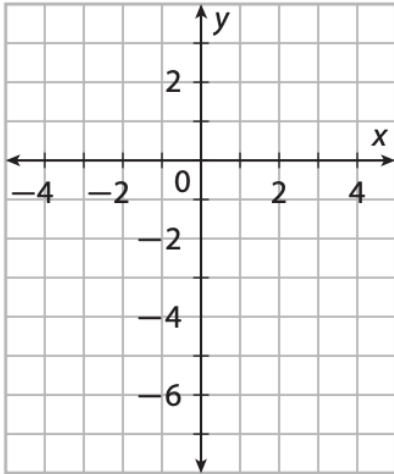
43. Graph the quadratic function $f(x) = 2x^2$



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44. Graph the quadratic function $f(x) = -\frac{1}{2}x^2$

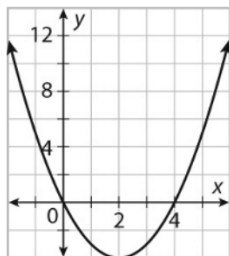


45. Use the zero product property to solve the equation $(x - 3)(x + 2) = 0$

46. Use the zero product property to solve the equation $(x + 16)(x + 6) = 0$

47. Use the zero product property to solve the equation $(2x - 5)(x - 9) = 0$

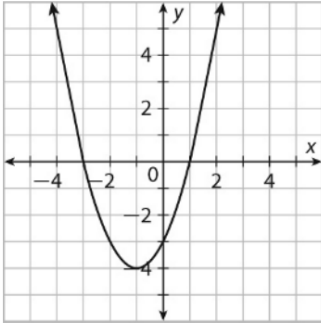
48. Find the solutions (zeros/x-intercepts) of the graph



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49. Find the solutions (zeros/x-intercepts) of the graph



50. Find the GCF of the terms of this polynomial $12x^2 - 4x$

51. Find the GCF of the terms of this polynomial $5x^2 + 100x^5$

52. Find the GCF of the terms of this polynomial $14x^2 + 28x - 6$

53. Factor out the GCF. $9x^4 - 27x^3 + 81x^2$

54. Factor out the GCF. $2x - 54$

55. Factor out the GCF. $10x^2 + 55x + 100$

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56. Solve the quadratic $x^2 + 5x + 6 = 0$ by factoring.

57. Solve the quadratic $x^2 + 5x - 14 = 0$ by factoring.

58. Factor the expression $x^2 + 15x + 54$

59. Factor the expression $x^2 - x - 12$

60. Factor the expression $x^2 + 6x + 8$

61. Factor the expression $x^2 - 3x - 15$

62. Factor the expression $2x^2 + 3x + 1$

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63. Factor the expression $3x^2 + 20x + 12$

64. Factor the expression $2x^2 + 3x - 20$

65. Simplify the radical $\sqrt{20}$

66. Simplify the radical $\sqrt{32}$

67. Simplify the radical $\sqrt{27}$

68. Simplify the radical completely $\sqrt{2}\sqrt{50}$

69. Simplify the radical completely $\sqrt{3}\sqrt{48}$

70. Simplify the radical completely $\sqrt{25x^2}$

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71. Simplify the radical completely $\sqrt{54x^4}$

72. Solve $(x - 2)^2 = 36$

73. Solve $(x + 2)^2 = 49$

74. Solve $(x - 4)^2 = 121$

75. Solve $(2x - 5)^2 = 100$

76. Solve $(3x + 4)^2 = 64$

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77. Solve $(4x - 6)^2 = 196$

78. What is the Quadratic Formula?

79. Use the Quadratic Formula to solve $x^2 + 7x + 12 = 0$

80. Use the Quadratic Formula to solve $x^2 - 4x - 12 = 0$

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81. Use the Quadratic Formula to solve $x^2 - 13x + 12 = 0$

82. What is the discriminant formula?

83. Use the discriminant to find the number of solutions to the equation $y = 9x^2 - 3x + 2$

84. Use the discriminant to find the number of solutions to the equation $y = 9x^2 + 6x + 1$

85. Use the discriminant to find the number of solutions to the equation $y = -6x^2 + 7x + 3$

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86. The height in feet of a rock above the ground is given by the equation

$h = -16t^2 + 8t + 48$ where t is the time in seconds after a rock is thrown. It is 48 feet above the ground. How long does it take the rock to reach the ground?

87. The height in feet of a rock above the ground is given by the equation

$h = -16t^2 + 4t + 56$ where t is the time in seconds after a rock is thrown. It is 56 feet above the ground. How long does it take the rock to reach the ground?

88. Solve $3x^2 - 27 = 0$

89. Solve $4x^2 - 64 = 0$

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90. Solve $2x^2 - 32 = 0$

91. Find the median of the data: 90, 110, 120, 120, 50, 40, 100, 80, 50.

92. Find the mode of the data: 90, 110, 120, 120, 50, 40, 100, 80, 50.

93. Find the mean of the data: 90, 110, 120, 120, 50, 40, 100, 80, 50.

94. Find the range of the data: 90, 110, 120, 120, 50, 40, 100, 80, 50.

95. Create a box plot of the data: 90, 110, 120, 120, 50, 40, 100, 80, 50.

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96. Find the median of the data: 5, 6, 9, 4, 3, 3, 3, 2, 4.

97. Find the mode of the data: 5, 6, 9, 4, 3, 3, 3, 2, 4.

98. Find the mean of the data: 5, 6, 9, 4, 3, 3, 3, 2, 4.

99. Find the range of the data: 5, 6, 9, 4, 3, 3, 3, 2, 4.

100. Create a box plot of the data: 5, 6, 9, 4, 3, 3, 3, 2, 4.

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101. Find the median of the data: 10, 20, 50, 40, 10, 30, 10, 60, 10, 50, 20.

102. Find the mode of the data: 10, 20, 50, 40, 10, 30, 10, 60, 10, 50, 20.

103. Find the mean of the data: 10, 20, 50, 40, 10, 30, 10, 60, 10, 50, 20.

104. Find the range of the data: 10, 20, 50, 40, 10, 30, 10, 60, 10, 50, 20.

105. Create a box plot of the data: 10, 20, 50, 40, 10, 30, 10, 60, 10, 50, 20.

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106. Complete the two-way frequency table:

	Like Basketball		
Like Track	Yes	No	Total
Yes	40		100
No	10		100
Total	50		200

107. Using the two-way frequency table above, how many students don't like basketball and don't like track?

108. Complete the two-way frequency table:

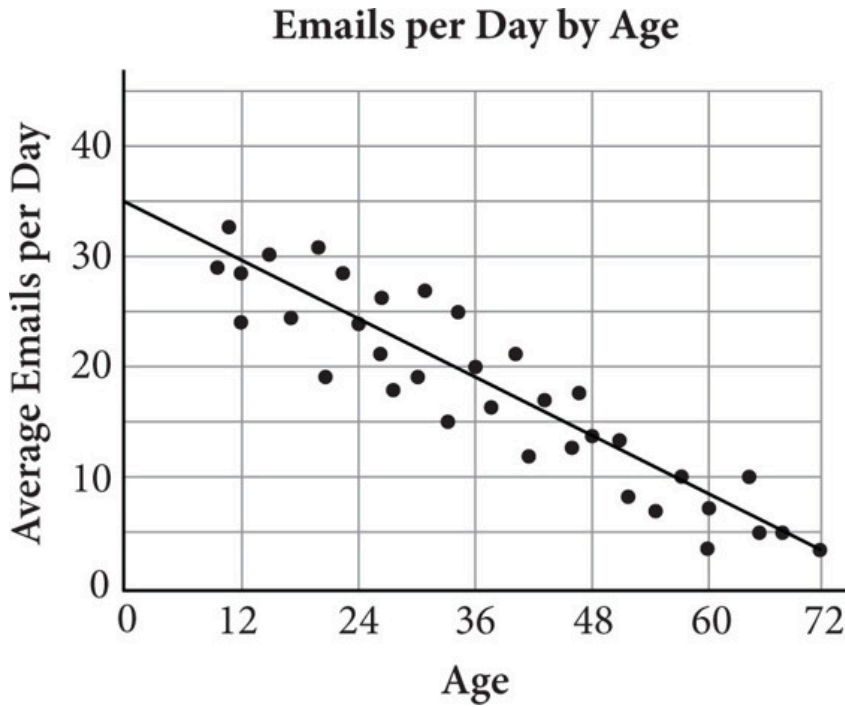
	Like Carrots		
Like Apples	Yes	No	Total
Yes		30	50
No		25	50
Total		55	100

109. Using the two-way frequency table above, how many students like apples and don't like carrots?

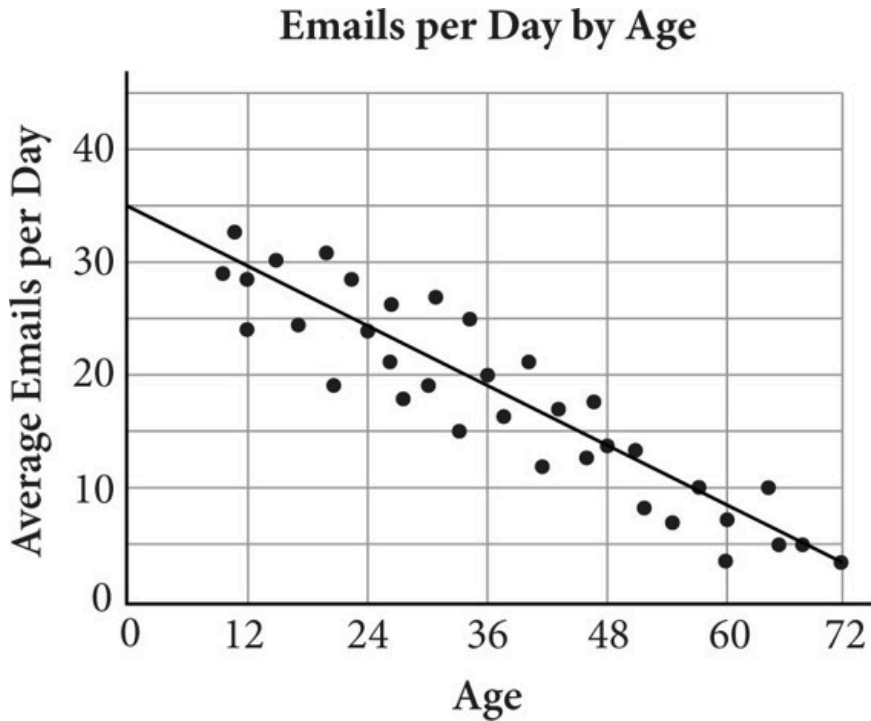
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110. Based on the graph, what is the best prediction for the average number of emails per day for a 36 year old.



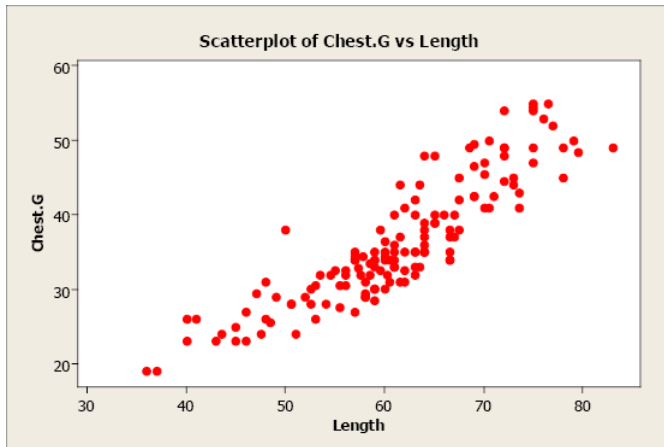
111. Based on the graph, what is the best prediction for the age of a person who has on average 30 emails per day?



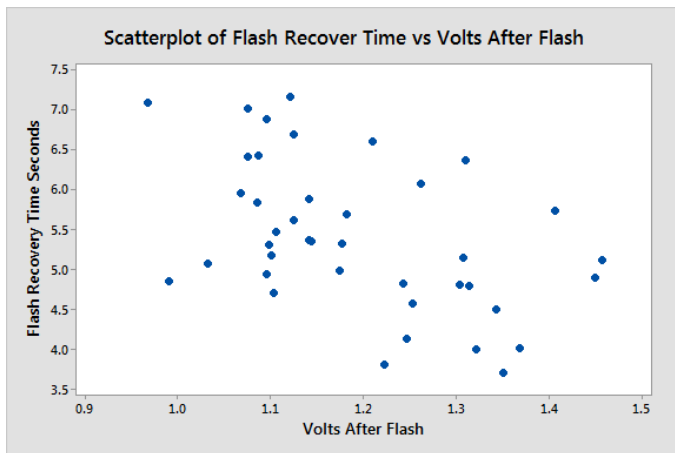
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112. How would you describe the correlation of the scatter plot?



113. How would you describe the correlation of the scatter plot?



114. How would you describe the correlation of the scatter plot?

