

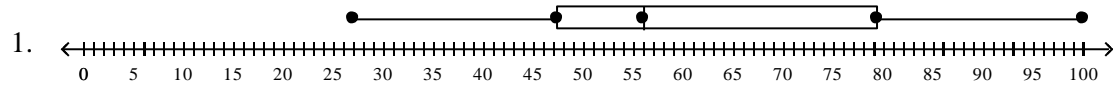
Algebra 1 XL SEM2 Final Exam Review

Answer Section

MULTIPLE CHOICE

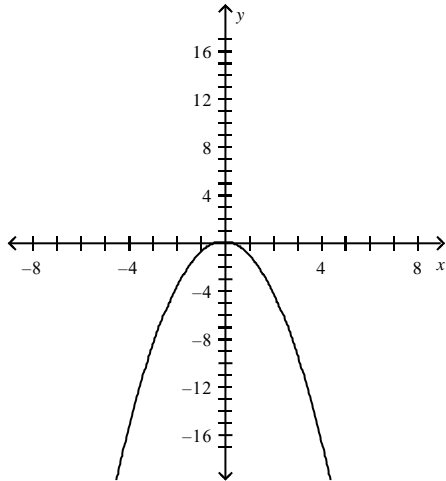
1. D

SHORT ANSWER



2. 47
3. 42
4. 33
5. $\frac{42}{625}$
6. $\frac{21}{575}$
7. $\frac{729}{15625}$
8. $\frac{189}{15625}$
9. $\frac{63}{4600}$
10. $6r^2$
11. $2x(9x^2 + 17x - 2)$
12. $(x - 1)(2 - 5x)$
13. $(5x - 2)(3x^2 - 5)$
14. $(x - 4)(4x^2 - 3)$
15. $(x + 1)(x + 36)$
16. $(z + 10)(z + 9)$
17. $(t - 8)(t + 4)$
18. $(x + 2)(x + 18)$
19. $(x^2 + 25)^2$
20. $(x - 2)(3x + 5)$
21. $(x + 3)(3x + 2)$
22. $(x + 4)(5x - 8)$
23. $-(x - 8)(3x - 2)$
24. $3z(3z + 2)^2$
25. $2x(3x + 2)(5x + 1)$

26.



27. Because $a < 0$, the parabola opens downward.

28. The vertex is $(-4, 5)$, and the minimum is 5.

29. D: all real numbers

R: $y \geq -2$

30. -1 and 3

31. $x = 1$

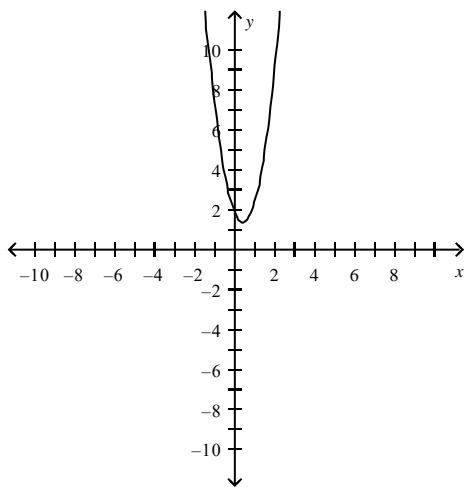
32. $x = 1$

33. $(7, 2)$

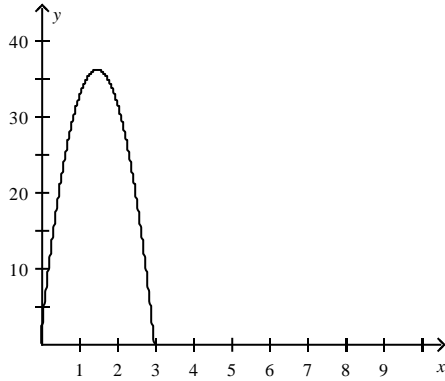
34. height: 107 m; distance: 361 m

35. height = 12 units; width = 120 units

36.

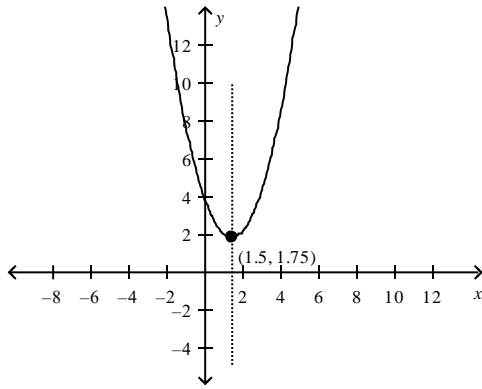


37.



It takes the ball 1.5 seconds to reach its maximum height. The ball's maximum height is 36 feet. It takes the ball 3 seconds to return to the ground.

38.



The axis of symmetry is $x = \frac{3}{2}$. The vertex is $\left(\frac{3}{2}, \frac{7}{4}\right)$.

39. $g(x) = -4x^2$, $h(x) = 2x^2$, $f(x) = -\frac{1}{4}x^2$

40. The graph of $g(x) = -\frac{3}{4}x^2 + 5$ is wider than the graph of $f(x) = x^2$. The graph of $g(x) = -\frac{3}{4}x^2 + 5$ opens downward, and the graph of $f(x) = x^2$ opens upward. The axis of symmetry is the same. The vertex of $f(x) = x^2$ is $(0, 0)$. The vertex of $g(x) = -\frac{3}{4}x^2 + 5$ is translated up 5 units to $(0, 5)$.

41. The solutions are 1 and 5.

42. $x = 2$

43. 3 sec

44. 4.5 sec

45. The solutions are -4 and 6 .

46. -4 and -3

47. -1

48. 8 sec

49. The solutions are 10 and -10 .

50. $\pm\frac{7}{11}$

51. $\pm 5\sqrt{2}$

52. $x^2 + 12x + 36$

53. 17 and 1

54. The solutions are -1 and -5 .

- 55. $x = 4$ or $x = -1$
- 56. There are no real solutions.
- 57. $a = -7$ or $a = -9$
- 58. 3
- 59. 48
- 60. March
- 61. Wednesday
- 62. Monday to Tuesday
- 63. 1995, 2000, 2001, and 2002
- 64. Drama
- 65. 35%
- 66. Basketball team
- 67. **February Temperatures**

Stem | Leaves

```

1 | 6 6 8 8
2 | 1 1 2 2 4 6 6 9
3 | 1 8

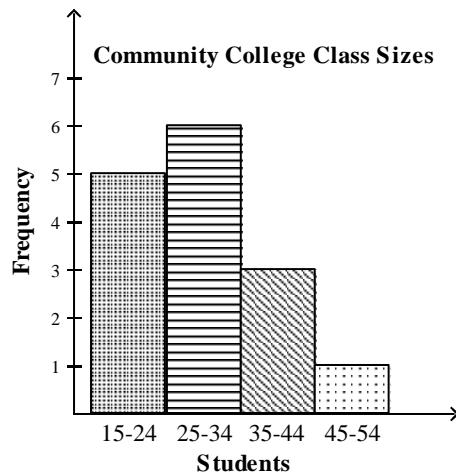
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Key: 2|3 means 23

- 68. **Wolves Observed**

Number of Wolves	Frequency
14 – 17	5
18 – 21	3
22 – 25	2
26 – 29	5

- 69.



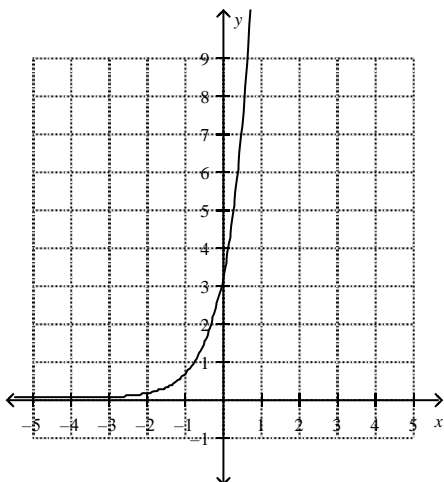
- 70. 6, 17, 9, 9, 34, 59
- 71. mean = 27.4; median = 27;
mode = 23; range = 10

72.	Without outlier	mean = 13	median = 13	modes = 5, 13	range = 19
	With outlier	mean = 16.6	median = 13	modes = 5, 13	range = 37

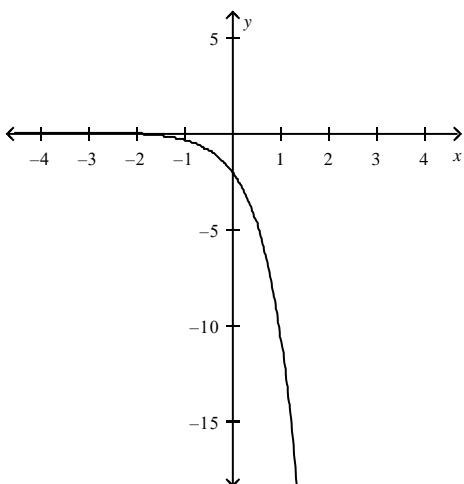
The outlier is 42. The outlier increases the mean by 3.6, and the range by 18. The outlier has no effect on the median or the modes.

73. The median best describes the rents because most of the rents were near \$790.
74. The average rent is the mean, \$896.
75. The rent advertised most often is the mode, \$680.
76. Glo-Brite has a greater median by about 20 days.
77. 4, 6, 7, 11, 15, 16
78. The graph is misleading because the intervals on the vertical axis are not equal. Someone might believe that the price declined quickly from 2002 to 2004, then more slowly. In fact, the price declined \$200 each year.
79. The sections of the graph do not add to 100%, so the percent for at least one type of expense is not represented.
80. The sample is biased because train riders are more likely to favor better railroad service than commuters who drive or use other types of transportation.
81. **Question 1** asks about the accuracy of the statistician's analyzing methods. **Question 2** asks about the thoroughness of the data. **Answer 1** leads you to believe that the statistician is fairly confident in her analysis. **Answer 2** leads you to believe that the statistician is very confident that the data is thorough.
82. Sample space: {1, 2, 3, 4, 5, 6, 7, 8}
Outcome shown: 5
83. Likely
84. $\frac{3}{5}$
85. 99.2%
86. 1197
87. $\frac{5}{6}$
88. 61%
89. 0.06
90. 2:3
91. The person chosen to be first cannot also be second, so the events are dependent.
92. The spin on the first spinner does not affect the spin on the second, so the events are independent.
93. 0.16
94. $\frac{35}{132}$
95. 18, -54, 162
96. 3,750
97. \$400
98. About 42 lemmings
99. Exponential function.
As the x -values are increased by a constant amount, the y -values are multiplied by a constant amount.

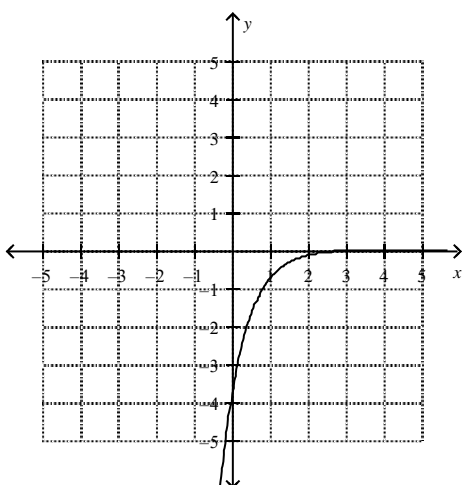
100.



101.



102.



103. 2011

104. $y = 145(1 + 0.05)^{14}$; \$287.09

105. $8,600(1.00291\bar{6})^{12t}$; \$11,374

106. $y = 1,100(0.96)^t$

The population in 2010 will be about 861 fish.

- 107. 15 mg
- 108. linear
- 109. exponential
- 110. 15,943,230 termites
- 111.

Year	Value (\$)
0	500,000
1	530,000
2	561,800
3	595,508
4	631,238.48

Year 0 is the year when the house is new. The model that best represents the data in the table is exponential because value increases at an exponential rate. A function for the data is $y = 500,000(1.06)^x$.

- 112. $\frac{4}{7}$
- 113. $10\sqrt{3}$
- 114. $\frac{y^5}{8}$
- 115. $\frac{5\sqrt{2}}{9}$
- 116. $-11\sqrt{2}$
- 117. $24\sqrt{5b}$
- 118. $(7\sqrt{35})x$
- 119. $4\sqrt{3} + 2\sqrt{10}$
- 120. $74 - 16\sqrt{10}$
- 121. $\frac{\sqrt{91}}{7}$
- 122. $c = 16$
- 123. $z = 289$
- 124. $x = 36$
- 125. $m = 3$
- 126. $x = 5$
- 127. $x = 9$
- 128. 10
- 129. The excluded values are 3 and -9.
- 130. $3z; z \neq 2$ or 0
- 131. $\frac{1}{x-5}$

132. $-\frac{1}{x+3}$
133. $\frac{4a}{7b^2}$, $a \neq 0$, $b \neq 0$
134. $\frac{x+1}{2x+4}$
135. $\frac{5}{n-5}$
136. $\frac{3}{2(x+4)}$
137. $\frac{12x-29}{(2x+5)(2x-5)}$
138. $\frac{88x-10y^4}{8x^2y^2}$
139. $\frac{5x+1}{5x^2+8x+3}$
140. $4(b+5)(b+2)(b+3)$
141. $\frac{2x+3y}{(x-y)(x+y)}$; $x \neq y$ and $x \neq -y$
142. $2x-3+\frac{6}{x}$
143. $c-8$
144. $x+2$
145. $-7x^2+10x-10+\frac{15}{x+1}$
146. $m=-\frac{9}{17}$
147. $y=4$
148. $x=-1$