

\_\_\_\_\_ 1. A drawer contains 2 red socks, 7 white socks, and 9 blue socks. Without looking, you draw out a sock and then draw out a second sock without returning the first sock. What is the probability that the first sock and the second sock are both red?

- A.  $\frac{4}{17}$                       B.  $\frac{1}{81}$                       C.  $\frac{1}{153}$                       D.  $\frac{1}{4}$

\_\_\_\_\_ 2. A jar contains 6 red marbles, 5 white marbles, and 9 blue marbles. You draw out a marble see that it is red, put it back and draw a second marble. What is the probability that the first and the second marble are both red?

- A.  $\frac{81}{400}$                       B.  $\frac{18}{495}$                       C.  $\frac{9}{100}$                       D.  $\frac{3}{38}$

\_\_\_\_\_ 3. Nine people are entered in a race. If there are no ties, in how many ways can the first two places come out?

- A. 36 ways    C. 17 ways  
B. 72 ways    D. 81 ways

\_\_\_\_\_ 4. The Pioneer High track coach has a group of 9 runners from which to choose a 4-person relay team. How many different 4-person teams can be formed from this group of runners?

- A. 6561 teams    C. 24 teams  
B. 126 teams    D. 3024 teams

\_\_\_\_\_ 5. So far in geography class, a student has an average of 75 on 4 quizzes. On his 5th quiz he scores an 80. What must be true?

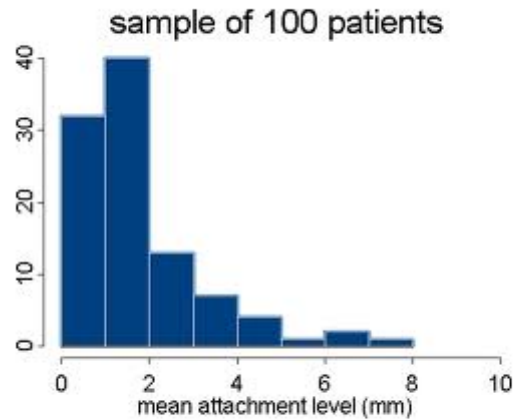
- A. His mode increases.    C. His mean increases.  
B. His median score is 80.    D. His 5th quiz grade is his highest score.

\_\_\_\_\_ 6. The table below shows students quiz results. What is the median quiz score?

Quiz grade	Frequency
10	6
9	4
8	3
6	1

- A. 8.25    C. 9  
B. 2.4    D. 9.5

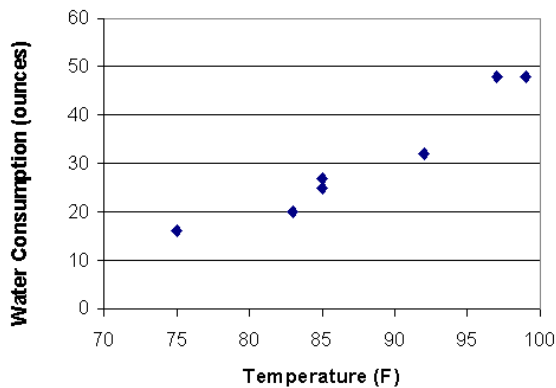
7. The following graph shows the distribution of a sample of 100 patients.



Is the distribution bimodal, normal, skewed, or uniform?

- A. bimodal
- B. skewed
- C. normal
- D. uniform

8. What can you conclude from the following graph?



- A. Drinking more water causes the temperature increase.
- B. When it is 75 degrees all people drink 17 ounces of water.
- C. As the temperature increases, water consumption increases.
- D. When the temperature is over 90 degrees, all people drink over 30 ounces of water.

9. Given the equation  $2x = 2y - 6$  which of the following equations would give you a system of equations with the same line and infinitely many solutions?

- A.  $y = x - 3$
- B.  $y = -0.5x + 3$
- C.  $y = 2x - 4$
- D.  $y = x + 3$

10. Given the equation  $y = 3x - 4$  which of the following equations would give you a system of equations with perpendicular lines and one solution?

A.  $y = -x + 3$

C.  $y = 2x - 4$

B.  $y = -\frac{1}{2}x + 3$

D.  $y = -\frac{1}{3}x + 3$

11. Which system of equations represents a pair of parallel lines and no solution?

A.  $\begin{cases} 3x - 3y = 6 \\ 2x - 2y = -8 \end{cases}$

C.  $\begin{cases} 2x - 3y = 6 \\ 2x + 3y = -8 \end{cases}$

B.  $\begin{cases} 3x - 3y = 6 \\ 2x - 5y = -8 \end{cases}$

D.  $\begin{cases} 5x - 5y = 10 \\ 2x - 2y = 4 \end{cases}$

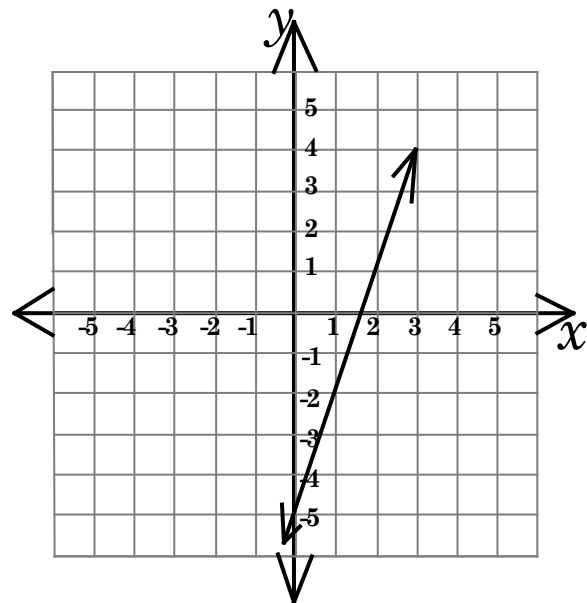
12. Given the equation  $y = 3x - 5$  on the graph, which equation forms a system of equations such that  $(2,1)$  is the only solution?

A.  $6x - 2y = 10$

B.  $2x - 3y = 1$

C.  $4x - 7y = -28$

D.  $2x - 3y = 28$



13. What is the solution for the  $x$ -coordinate in the system of equations?

$$\begin{cases} y = 2x + 7 \\ 3x - 2y = -12 \end{cases}$$

A.  $x = -2$

C.  $x = 2$

B.  $x = 3$

D.  $x = -3$















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\_\_\_\_ 50. Using the quadratic formula, what is the solution to  $x^2 = 15x - 34$ ?

A.  $x = \frac{15-\sqrt{89}}{2}$ ,  $x = \frac{15+\sqrt{89}}{2}$

C.  $x = 15 - \sqrt{89}$ ,  $x = 15 + \sqrt{89}$

B.  $x = -15 - \sqrt{89}$ ,  $x = -15 + \sqrt{89}$

D.  $x = \frac{-15-\sqrt{89}}{2}$ ,  $x = \frac{-15+\sqrt{89}}{2}$

\_\_\_\_ 51. Which of the following is a solution to  $x^2 + 6x - 7 = 0$  ?

A.  $x = 7$

C.  $x = -1$

B.  $x = 6$

D.  $x = -7$

\_\_\_\_ 52. Which of the following is a solution to  $2x^2 + 2x - 24 = 0$  ?

A.  $x = 2$

C.  $x = 4$

B.  $x = 3$

D.  $x = 24$

\_\_\_\_ 53. What is the domain and range of the following function?  $g(x) = |x| - 3$

A. Domain: *all Real numbers*,  
Range:  $y \geq 3$

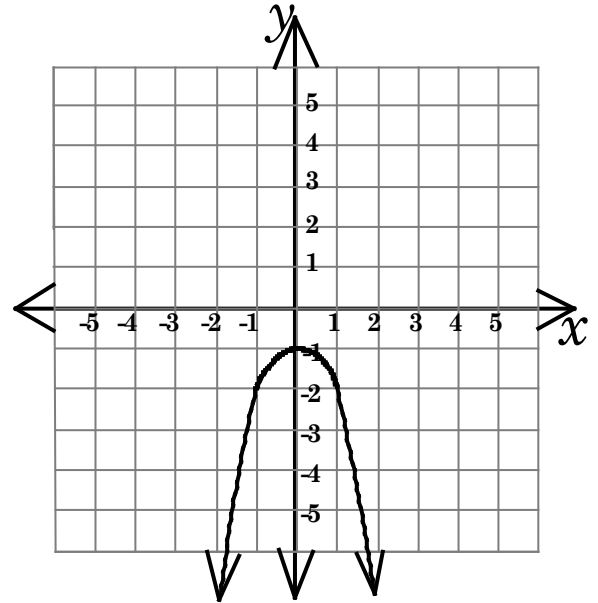
C. Domain: *all Real numbers*,  
Range:  $y \leq 3$

B. Domain: *all Real numbers*,  
Range:  $y \geq -3$

D. Domain: *all Real numbers*,  
Range: *all Real numbers*

\_\_\_\_ 54. Given the equation and graph of  $y = -x^2 - 1$ , what is the domain and range?

- A. Domain: all Real numbers, Range:  $y \geq 1$
- B. Domain: all Real numbers, Range:  $y \leq -1$
- C. Domain: all Real numbers, Range:  $y \leq 1$
- D. Domain:  $-1 \leq x \leq 1$ , Range:  $y \leq -1$



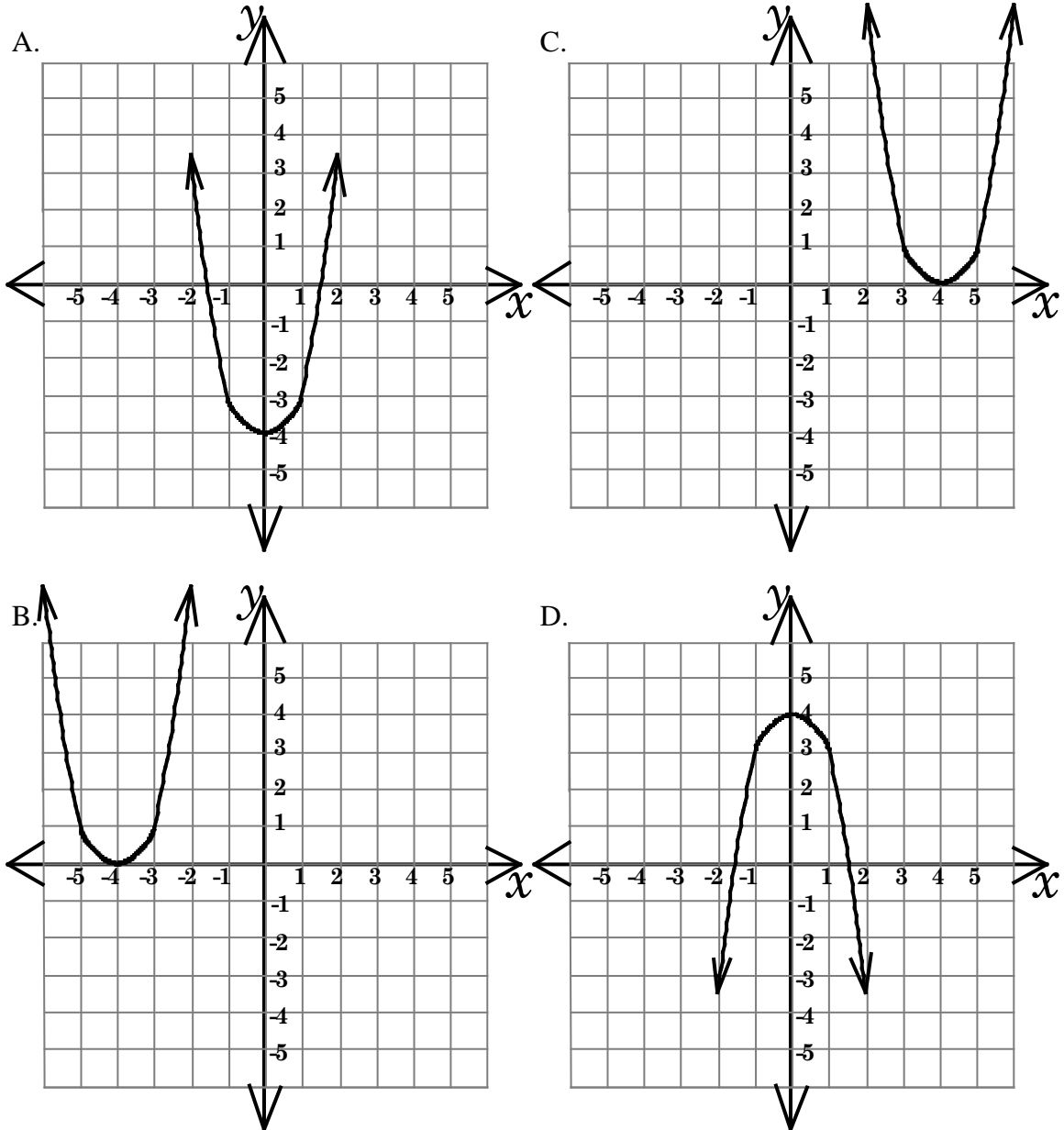
\_\_\_\_ 55. The graph of  $h(x) = -x^2 + 10x - 16$  models the height of one of the arches at the entrance of a parking structure. If the domain of this function is  $x \geq 0$ , what is the range?

- A.  $h(x) \leq 5$
- B.  $h(x) \leq 8$
- C.  $h(x) \leq 9$
- D.  $h(x) \leq 10$

\_\_\_\_ 56. A football is punted from a height of 2.5 feet above the ground and with an initial vertical velocity of 45 feet per second. The function that models the football's height is  $h(t) = -16t^2 + 45t + 2.5$ . If the range of the function represents the football's height, what does the domain represent?

- A. time after punt
- B. time after 45 seconds
- C. feet after punt
- D. feet above 2.5

57. Which of the following graphs represent  $y = x^2 - 4$  ?



58. Translate the graph of  $f(x) = -x^2$  three (3) units up. Which of the following is the function after the translation?

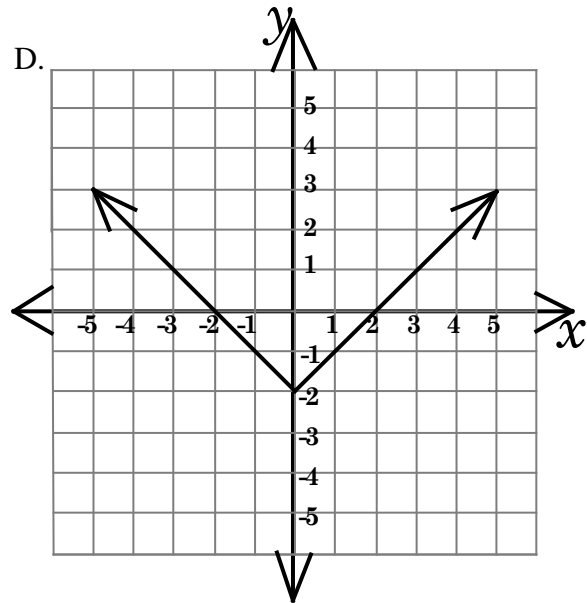
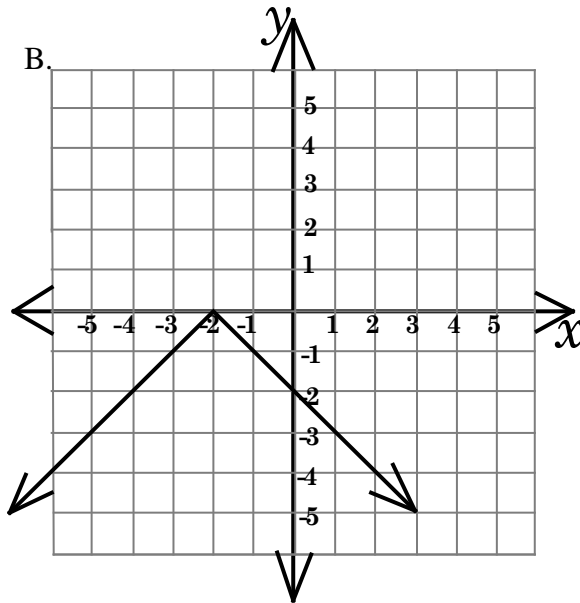
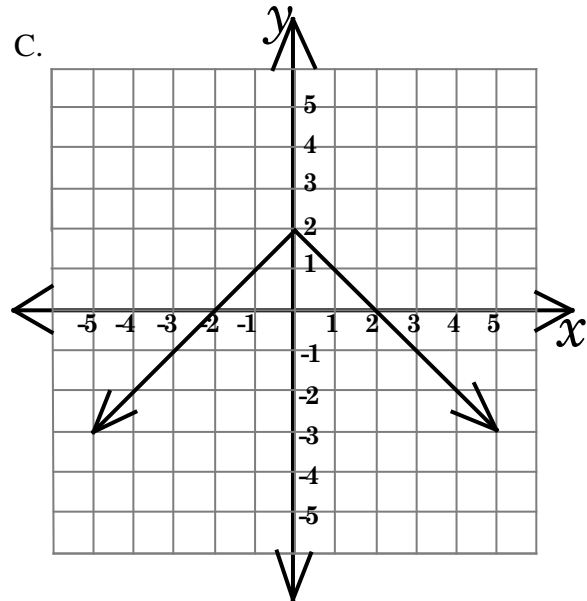
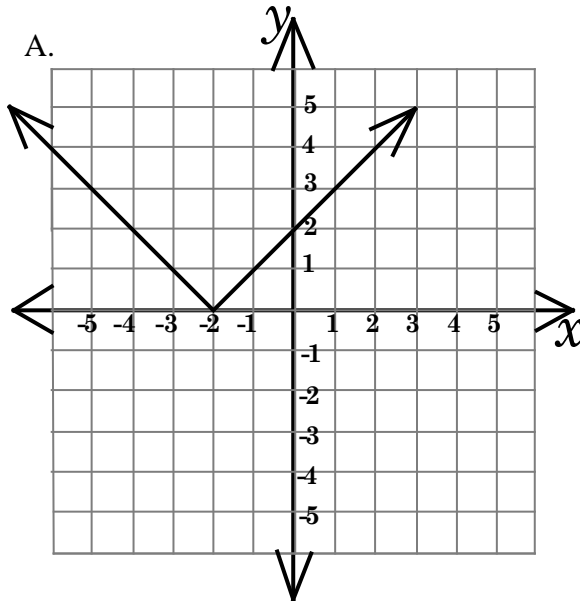
A.  $f(x) = -x^2 - 3$

C.  $f(x) = -x^2 + 3$

B.  $f(x) = x^2 + 3$

D.  $f(x) = 3x^2$

\_\_\_\_\_ 59 Which of the following graphs represent  $y = |x| - 2$  ?



\_\_\_\_\_ 60 Reflect the graph of  $f(x) = |x|$  over the x axis and translate the function one (1) unit up. Which of the following is the function after the translation?

A.  $f(x) = |x| - 1$

C.  $f(x) = |x| + 1$

B.  $f(x) = |x + 1|$

D.  $f(x) = -|x| + 1$

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Algebra 1 – S2 – Key for Instructional Materials  
2011-2012

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|-----|---|-----|---|-----|---|
| 1.  | C | 21. | A | 41. | A |
| 2.  | C | 22. | A | 42. | D |
| 3.  | B | 23. | D | 43. | B |
| 4.  | B | 24. | B | 44. | D |
| 5.  | C | 25. | B | 45. | B |
| 6.  | C | 26. | A | 46. | B |
| 7.  | B | 27. | B | 47. | C |
| 8.  | C | 28. | A | 48. | A |
| 9.  | D | 29. | C | 49. | D |
| 10. | D | 30. | D | 50. | A |
| 11. | A | 31. | C | 51. | D |
| 12. | B | 32. | B | 52. | B |
| 13. | B | 33. | D | 53. | B |
| 14. | D | 34. | C | 54. | B |
| 15. | A | 35. | C | 55. | C |
| 16. | C | 36. | D | 56. | A |
| 17. | B | 37. | A | 57. | A |
| 18. | A | 38. | B | 58. | C |
| 19. | A | 39. | A | 59. | D |
| 20. | D | 40. | C | 60. | D |