Algebra I EOI Test review

1. When a number is multiplied by six and the product is decreased by nine, the final result is 33. Which equation represents this statement?
   A. $6x - 9 = 33$
   B. $9 - 6x = 33$
   C. $6(x - 9) = 33$
   D. $9(x - 6) = 33$

2. $n = 6n - 4$
   Which sentence represents this equation?
   A. Six times a number is 4 less than the number.
   B. A number is 4 minus the product of 6 and the number.
   C. A number is 4 less than the product of the number and 6.
   D. Six times the difference of a number and 4 is equal to the number.

3. Anne practiced piano for $x$ hours. Steve practiced piano three more hours than Anne. Kate practiced piano five times as long as Steve. Which expression represents the total time they practiced piano?
   A. $x + 3 + 5x$
   B. $x + 5(x + 3)$
   C. $x + x + 3 + 5x$
   D. $x + x + 3 + 5(x + 3)$

4. Sue’s age is twelve years less than twice Jack’s age. Let $J$ represent Jack’s age and $S$ represent Sue’s age. Which equation represents Sue’s age?
   A. $S = 2(12 - J)$
   B. $S = 2(J - 12)$
   C. $S = 12 - 2J$
   D. $S = 2J - 12$

5. $2(x + y) - z = 2x + z$
   Which equation is equivalent to the equation above when solved for $y$?
   A. $y = 1$
   B. $y = z$
   C. $y = 1 + 4x$
   D. $y = z + 4x$

6. The surface area of a sphere with radius $r$ is given by the equation $S = 4\pi r^2$. Which equation is equivalent to the given equation when solved for $r$?
   A. $r = \frac{\sqrt{S}}{4\pi}$
   B. $r = \frac{\sqrt{S}}{2\pi}$
   C. $r = \frac{\sqrt{S}}{\sqrt{4\pi}}$
   D. $r = \frac{\sqrt{S}}{12\pi}$

7. $\frac{1 - 4x}{2 + x} = \frac{3 - 6y}{y}$
   If $y$ is a non-zero constant, which equation represents the value of $x$ in the given equation?
   A. $x = 3y - 2$
   B. $x = 3y + 2$
   C. $x = 9y - 6$
   D. $x = 9y + 6$

8. A drink container is shaped like a cylinder. The height of the container is 10 centimeters, and the radius of the container is 6 centimeters. What is the approximate volume of the container? (Use 3.14 for $\pi$)
   A. 203 cubic centimeters
   B. 300 cubic centimeters
   C. 452 cubic centimeters
   D. 1,131 cubic centimeters
9. The temperature of a gas is \(-76^\circ\) Fahrenheit. What is the temperature of the gas in degrees Celsius?

\[ F = \frac{9}{5}C + 32 \]

A \(-96^\circ\)C  
B \(-60^\circ\)C  
C \(-44^\circ\)C  
D \(-25^\circ\)C

10. A rectangular swimming pool has the measurements shown. The perimeter of the swimming pool is 80 meters. What is the value of \(x\)?

\[(2x + 3)\] meters

\[(x - 2)\] meters

A 11  
B 13  
C 25  
D 27

11. A rectangular garden with a 4-foot wide cement sidewalk is shown. The cement for the sidewalk is \(\frac{1}{2}\) foot deep.

What volume of cement is needed for the sidewalk?

\[V = \text{length} \times \text{width} \times \text{height}\]

A 96 cubic feet  
B 420 cubic feet  
C 192 cubic feet  
D 240 cubic feet

12. The circumference of a circle is 10\(\pi\) inches. What is the area of the circle?

\[A = \pi r^2\]

\[C = 2\pi r\]

A 5\(\pi\) square inches  
B 10\(\pi\) square inches  
C 25\(\pi\) square inches  
D 100\(\pi\) square inches

13. The weights and prices of four brands of dog food are shown in this table.

<table>
<thead>
<tr>
<th>Brand</th>
<th>W</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (in pounds)</td>
<td>8</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

Which brand has the lowest unit price?

A Brand W  
B Brand X  
C Brand Y  
D Brand Z

14. At a candle store, the ratio of green candles to red candles is 2 to 5. The store has 4,900 candles. How many candles are red?

A 350 red candles  
B 700 red candles  
C 1,400 red candles  
D 3,500 red candles

At a football game, 80% of the fans were rooting for the Rams. Of the fans rooting for the Rams, 20% bought souvenir footballs. What percent of the fans at the game rooted for the Rams and bought souvenir footballs?

A 4%  
B 16%  
C 60%  
D 100%

16. A drink dispenser fills cups at a rate of 2 ounces per second. Adrian has a 64-ounce cup that already contains 18 ounces of water. How long will it take the dispenser to fill the rest of Adrian’s cup with water?

A 9 seconds  
B 23 seconds  
C 92 seconds  
D 128 seconds

17. Antonio read the first 60 pages of his book in 40 minutes. At this rate, how long should it take Antonio to read the rest of his 210-page book?

A 100 minutes  
B 130 minutes  
C 135 minutes  
D 225 minutes
18. An angstrom is a unit of length defined as $10^{-8}$ centimeters. Using a microscope, a scientist is looking at a particle $10^7$ angstroms long. What is the length of the particle in centimeters?
   - A $10^{-24}$ centimeters
   - B $10^{-11}$ centimeters
   - C $10^{-9}$ centimeters
   - D $10^{-9}$ centimeters

19. The snowfall in Jackson Creek was recently measured at 0.4 inches per hour over a period of 9 hours and 30 minutes. How many inches of snow did Jackson Creek receive?
   - A 3.41 inches
   - B 3.60 inches
   - C 3.72 inches
   - D 3.80 inches

20. Sarah drove her boat at 5 miles per hour for 45 minutes and at 4 miles per hour for 30 minutes. What was the total distance, in miles, that Sarah drove her boat?
   - A 2 miles
   - B $5\frac{3}{4}$ miles
   - C 9 miles
   - D 16 $\frac{1}{2}$ miles

21. When $x = 8$, what is the value of $4x - \frac{1}{2}x$?
   - A 24
   - B 28
   - C 32
   - D 36

22. What is the value of $|y - 4|$ when $y = -7$?
   - A -11
   - B -3
   - C 3
   - D 11

23. What is the value of the expression $(3m - 2(-n) - mn)$ when $m = 3$ and $n = -2$?
   - A -1
   - B 7
   - C 11
   - D 19

24. $\frac{3\sqrt{2}}{\sqrt{4}}$
   What is the simplified value of this expression?
   - A $\sqrt{8}$
   - B $\sqrt{10}$
   - C 4
   - D 8

25. $\frac{3}{\sqrt{2}}$
   What is the simplified value of this expression?
   - A $\frac{\sqrt{2}}{2}$
   - B $\frac{3\sqrt{2}}{2}$
   - C $2\sqrt{2}$
   - D $3\sqrt{2}$

26. $(2x - 3) - (3x - 4)$
   What is the simplified value of this expression?
   - A $-x - 1$
   - B $-x + 7$
   - C $5x + 1$
   - D $5x - 7$

27. $2x + 5y + 7x - y$
   What is the simplified form of this expression?
   - A $9x + 4y$
   - B $9x + 5y$
   - C $9x + 6y$
   - D $9x - 4y$
28. \[3x^2 + 8x - 10\]  
\[-5x^2 - 4x - 2\]  
What is the sum of these two expressions?  
A. \(2x^2 + 4x - 8\)  
B. \(-2x^2 + 4x - 8\)  
C. \(2x^2 + 4x - 12\)  
D. \(-2x^2 + 4x - 12\)

29. \((x + 2)(2x - 9)\)  
What is the area of the rectangle?  
A. \(2x^2 - 18\)  
B. \(2x^2 + 5x - 18\)  
C. \(2x^2 - 13x - 18\)  
D. \(2x^2 + 13x - 18\)

30. Which expression is the factored equivalent of \(x^2y^2 + x^2y^2\)?  
A. \(x(x^2y^2)\)  
B. \(y(x^2y^2)\)  
C. \(x^2y^2(y + 1)\)  
D. \(y^2(x + 1)\)

31. Which expression is the factored equivalent of \(3x^2 - 4x + 17\)?  
A. \((3x - 1)(x + 1)\)  
B. \((3x - 1)(x + 1)\)  
C. \((3x + 1)(x - 1)\)  
D. \((3x + 1)(x + 1)\)

32. Which expression is a factor of \(4x^2 + 2x - 2\)?  
A. \((x - 1)\)  
B. \((x + 1)\)  
C. \((x - 2)\)  
D. \((x + 2)\)

33. Which graph shows points that represent a nonlinear relation?  
A.  
B.  
C.  
D. 

34. Which set of data represents a linear relation?  
A.  
B.  
C.  
D. 

35. Which relation diagram represents a function?  
A.  
B.  
C.  
D. 

36. Which graph represents a function?  
A.  
B.  
C.  
D.  

4
37. Which set of ordered pairs represents a function?
A \{(2, 1), (2, 2), (2, 3)\}
B \{(4, 2), (2, 4), (4, 4)\}
C \{(0, 0), (0, 1), (1, 0), (1, 1)\}
D \{(1, 1), (2, 2), (3, 3), (4, 4)\}

38. Which set of data represents a function?

<table>
<thead>
<tr>
<th>(x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

39. \[(0, 1), (2, 4), (4, 2), (4, 8), (8, 2), (8, 5)\]
Which set of numbers represents the domain?
A \{1, 2, 4, 5, 8\}
B \{0, 2, 4, 8\}
C \{0, 1, 2, 4, 8\}
D \{0, 1, 2, 4, 5, 8\}

40. \[(0, 1), (2, 2), (4, 3), (8, 4)\]
Which set of numbers represents the range?
A \{0, 2, 4, 8\}
B \{1, 2, 3, 4\}
C \{0, 1, 2, 3, 4, 8\}

41. The table shows a relationship between \(x\) and \(y\). Which set represents the range?

<table>
<thead>
<tr>
<th>(x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>3</td>
</tr>
<tr>
<td>-1</td>
<td>-4</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>-1</td>
</tr>
</tbody>
</table>

42. John owns a window-cleaning business. He charges different prices for cleaning windows of different sizes. What are the independent and dependent variables?
A Independent variable: window size
Dependent variable: type of business
B Independent variable: window size
Dependent variable: price charged
C Independent variable: type of business
Dependent variable: price charged
D Independent variable: price charged
Dependent variable: window size

43. The graph shows the average squirrel population in a city park from the years 1970 to 2000. What are the domain and range of the data shown on the graph?
A Domain: \(x\) \(\geq\) 1970, \(y\) \(\geq\) 0
B Range: \(y\) \(\leq\) 5,000
C Domain: \(x\) \(\leq\) 2000, \(y\) \(\leq\) 4,000
D Range: \(y\) \(\geq\) 1,000

44. \(y = 2x - 5\)
What is the value of \(x\) when \(y = 17\)?
A \(-5\)
B \(-3\)
C \(1\)
D \(3\)

45. What is the value of \(y\) when \(x = 2\)?
A \(4\)
B \(4\)
C \(-2\)
D \(-6\)
46. \[ f(x) = x^2 - 3x \]

What is the value of \( f(5) \)?

A 4
B 8
C 10
D 16

51. \[ 2x - 5 = 7 \]

What value of \( x \) is a solution to this equation?

A 1
B 6
C 12
D 24

52. The equation below represents the cost \( y \) of a large pizza with different numbers of toppings \( x \).

\[ y = 10.25 - 1.25x \]

Before tax, Carla paid $10.00 for a large pizza. How many toppings were on Carla’s pizza?

A 6 toppings
B 7 toppings
C 8 toppings
D 9 toppings

53. The profit \( P \) an ice cream store makes in one day when producing \( x \) gallons of ice cream is given by the equation \( P = 60x - 420 \). For what value of \( x \) is the store’s profit equal to 0?

A 0
B 1
C 7
D 8

54. Brad graduated from college and started a new job. This table shows his yearly salary \( y \) for each year \( x \) for the next four years.

<table>
<thead>
<tr>
<th>Year ( x )</th>
<th>Salary ( y )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$36,500</td>
</tr>
<tr>
<td>2</td>
<td>$38,600</td>
</tr>
<tr>
<td>3</td>
<td>$40,700</td>
</tr>
<tr>
<td>4</td>
<td>$42,800</td>
</tr>
</tbody>
</table>

If Brad’s salary continues to increase at the same rate, what will be his salary for the 9th year at this job?

A $44,900
B $47,000
C $49,100
D $51,200

55. Tina will set up chairs \( c \) for a concert. She will set up 20% more chairs than the number of tickets \( t \) sold. There were 130 tickets sold. How many chairs will Tina set up?

A 26 chairs
B 104 chairs
C 150 chairs
D 156 chairs
56. Which graph represents the function $y = 17$?

- A
- B
- C
- D

57. What happens to the $y$-intercept of $y = x$ when the function changes to $y = x + 4$?

- A The $y$-intercept does not change.
- B The $y$-intercept changes from 0 to 4.
- C The $y$-intercept changes from 0 to $-4$.
- D The $y$-intercept becomes equal to the $x$-intercept.

58. What happens to the slope and $y$-intercept of $y = x$ when the equation changes to $y = 2x - 6$?

- A The slope changes to 2, and the $y$-intercept changes to 6.
- B The slope changes to $-6$, and the $y$-intercept changes to 2.
- C The slope changes to 2, and the $y$-intercept changes to $-6$.
- D The slope changes to $-6$, and the $y$-intercept changes to $-2$.

59. What happens to the graph of $y = |x|$ when the equation changes to $y = |x| + 4$?

- A The graph shifts up 4 units.
- B The graph shifts left 4 units.
- C The graph shifts right 4 units.
- D The graph shifts down 4 units.

60. What happens to the graph of $y = |x|$ when the equation changes to $y = |x - 2|$?

- A The graph shifts up 2 units.
- B The graph shifts left 2 units.
- C The graph shifts right 2 units.
- D The graph shifts down 2 units.

61. Which graph represents a line with a slope of 3?

- A
- B
- C
- D

62. What is the slope of this graphed line?

- A $-3$
- B $\frac{1}{3}$
- C $\frac{1}{3}$
- D 3

63. What is the slope of the line that passes through the points $(-5, 2)$ and $(2, 3)$?

- A $\frac{1}{7}$
- B $\frac{1}{3}$
- C 3
- D 7

64. What is the slope of the line that passes through the points in this table?

<table>
<thead>
<tr>
<th>$x$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-4</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>-4</td>
<td>20</td>
</tr>
</tbody>
</table>

- A $-6$
- B $-4$
- C 5
- D 6
65. \(-2x + 3y = -6\)
What is the slope of this line?

A. \(-2\)
B. \(-\frac{2}{3}\)
C. \(\frac{2}{3}\)
D. 2

66. Which equation represents a horizontal line?

A. \(y = x\)
B. \(x = 3\)
C. \(y = 5\)
D. \(x = -y\)

67. What is the slope of the line perpendicular to \(y = 2x + 3\)?

A. \(-\frac{1}{3}\)
B. \(-\frac{1}{2}\)
C. 2
D. 3

68. Which equation represents a line parallel to the line \(y = -\frac{1}{3}x - 2\)?

A. \(y = -\frac{1}{3}x - 8\)
B. \(y = -3x - 2\)
C. \(y = \frac{1}{3}x - 2\)
D. \(y = 3x - 8\)

69. \(y = -2x + 5\)
\(y = \frac{1}{2}x + 2\)

Which statement is true about these equations?

A. The equations represent parallel lines.
B. The equations represent the same line.
C. The equations represent perpendicular lines.
D. The equations represent lines that intersect but are not perpendicular.

70. Which statement describes the line that contains the points \((-3, 4)\) and \((-3, 5)\)?

A. The line is vertical.
B. The line is horizontal.
C. The line has a positive slope.
D. The line has a negative slope.

71. Which equation represents a line that is perpendicular to this graphed line?

A. \(y = \frac{1}{3}x + 2\)
B. \(y = \frac{2}{3}x - 2\)
C. \(y = -2x + 2\)
D. \(y = 2x - 2\)

72. The graph shows the hours worked and total pay for Paul's part-time job.

What does the slope of this graph represent?

A. hourly pay
B. days worked
C. hours worked
D. money earned

73. The table shows how much Donna charges for doing yard work. She charges a fixed fee plus an hourly rate.

<table>
<thead>
<tr>
<th>Hours Worked</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Charged</td>
<td>$11</td>
<td>$17</td>
<td>$23</td>
<td>$20</td>
<td>$35</td>
</tr>
</tbody>
</table>

What is Donna's hourly rate?

A. $5.50 per hour
B. $6.00 per hour
C. $8.50 per hour
D. $11.00 per hour
74. The table shows delivery service charges according to the number of miles traveled to make the delivery.

<table>
<thead>
<tr>
<th>Miles Traveled</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$14.00</td>
</tr>
<tr>
<td>2</td>
<td>$21.00</td>
</tr>
<tr>
<td>3</td>
<td>$28.00</td>
</tr>
<tr>
<td>4</td>
<td>$35.00</td>
</tr>
</tbody>
</table>

What does the slope of the linear relationship in the table represent?
A the ratio of the amount charged to miles traveled
B the ratio of the miles traveled to the amount charged
C the ratio of the change in miles traveled to the change in the amount charged
D the ratio of the change in the amount charged to the change in miles traveled

75. Todd deposited $200 in his account. The graph shows how the money in his account will increase over the next ten years.

76. An oil tank contains 100 gallons of oil when Paul starts to fill it. Paul pumps oil at the rate of 20 gallons per minute. The graph shows the number of minutes Paul pumps oil into the tank and the amount of oil, in gallons, in the tank.

77. Which graph represents a line with a y-intercept of -4 and a slope of 3?

78. What is the equation of the line that has a slope of -5 and passes through the y-axis at 2?
A \( y = -5x - 2 \)
B \( y = 5x + 2 \)
C \( y = -5(x - 2) \)
D \( y = 5(x + 2) \)

79. What is the equation of the line with a slope of -2 that passes through the point (4, -3)?
A \( y + 4 = 3(x - (-2)) \)
B \( y + 3 = 4(x - (-2)) \)
C \( y + 4 = -2(x - 3) \)
D \( y + 3 = -2(x - 4) \)

80. | x  | y  |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>120</td>
</tr>
<tr>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>40</td>
<td>240</td>
</tr>
</tbody>
</table>

What is the equation of the line that passes through the points in this table?
A \( y = 6x \)
B \( y = 60x \)
C \( y = 6x + 10 \)
D \( y = 60x + 10 \)

81. Which graph represents a line with a slope of -2 that passes through the point (3, 3)?

82. What is the equation of this graphed line?
A \( y = \frac{3}{2}x + 5 \)
B \( y = \frac{3}{2}x - 5 \)
C \( y = \frac{3}{2}x - 5 \)
D \( y = \frac{3}{2}x + 5 \)
83. What is the function of the line that contains the points (10, -2) and (20, -12)?
   A  f(x) = x - 8
   B  f(x) = -x + 8
   C  f(x) = x - 12
   D  f(x) = -x + 12

84. | x  | y  |
    | 2  | 5  |
    | 3  | 7  |
    | 4  | 9  |

What is the equation of the line that passes through the points in this table?
   A  y = 2x + 5
   B  y = 2x + 1
   C  y = \frac{3}{2}x - 6
   D  y = \frac{3}{2}x + 12

85. What is the equation of the line with a slope of 3 that passes through the x-axis at -1?
   A  y = 3x - 1
   B  y = 3x + 1
   C  y = 3x - 3
   D  y = 3x + 3

86. What is the equation of the line that passes through the points (-2, 4) and (3, -1)?
   A  y = -x + 2
   B  y = 3x - 2
   C  y = -x - 6
   D  y = -\frac{3}{5}x + \frac{14}{5}

87. The population of a small town in 1990 was 1,200 people, and the population in 2000 was 2,700 people. Let x represent the number of years since 1990. Let y represent the population. Which linear equation represents this data?
   A  y = 150x + 1,200
   B  y = 150x + 2,700
   C  y = 1,200x + 2,700
   D  y = 2,700x + 1,200

88. What is the equation of the line with an x-intercept of 3 and a y-intercept of -6?
   A  y = 2x + 3
   B  y = 2x - 6
   C  y = 3x + 3
   D  y = 3x - 6

89. A furnace technician charges $20 per hour and a one-time service charge of $30. Which equation represents the total charge (y) for working x hours?
   A  y = 20x + 30
   B  y = 30x + 20
   C  y = 20(x - 30)
   D  y = 20(x + 30)

90. The table shows the amount Donna charges (y) for doing yard work. She charges a fixed fee plus an hourly rate.

<table>
<thead>
<tr>
<th>Hours Worked</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Charged</td>
<td>$11</td>
<td>$17</td>
<td>$23</td>
<td>$29</td>
<td>$35</td>
</tr>
</tbody>
</table>

Which equation represents the amount Donna charges for working x hours?
   A  y = x + 6
   B  y = x + 10
   C  y = 5x + 6
   D  y = 6x + 5

91. The table shows how the length (s) of a spring changes when a weight (w) at the end of the spring is increased.

<table>
<thead>
<tr>
<th>Weight (in pounds)</th>
<th>0.0</th>
<th>0.5</th>
<th>1.0</th>
<th>1.5</th>
<th>2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Spring (in inches)</td>
<td>4.0</td>
<td>4.8</td>
<td>5.6</td>
<td>6.4</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Which equation models this situation?
   A  s = 0.8w + 4
   B  s = 1.6 + 4
   C  s = 3w + 1.2
   D  s = 4w + 0.8

92. What is the equation of this graphed function?
   A  y = \frac{x}{2} + 1
   B  y = \frac{x}{2} - 3
   C  y = 3x + 1
   D  y = 3x - 3
Algebra I EOI Test review

93. Which number line represents the solution set to the inequality \(4 - 4x \geq -4\)?
   A. \[\begin{array}{c}
   -6 \ -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4
   \end{array}\]
   B. \[\begin{array}{c}
   -6 \ -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4
   \end{array}\]
   C. \[\begin{array}{c}
   -6 \ -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4
   \end{array}\]
   D. \[\begin{array}{c}
   -6 \ -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4
   \end{array}\]

94. Which number line represents the solution set to the inequality \(6 - 2x \geq 14\)?
   A. \[\begin{array}{c}
   -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4 \ 5
   \end{array}\]
   B. \[\begin{array}{c}
   -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4 \ 5
   \end{array}\]
   C. \[\begin{array}{c}
   -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4 \ 5
   \end{array}\]
   D. \[\begin{array}{c}
   -5 \ -4 \ -3 \ -2 \ -1 \ 0 \ 1 \ 2 \ 3 \ 4 \ 5
   \end{array}\]

95. Rebecca has at most 8 hours to work on her math homework and her history report. The graph shows different combinations of math problems and history report pages she can complete.

   ![](chart.png)

   Which of these combinations could Rebecca get complete in 8 hours?
   A. 2 history pages, 60 math problems
   B. 4 history pages, 30 math problems
   C. 8 history pages, 50 math problems
   D. 16 history pages, 10 math problems

96. What values of \(x\) represent the solutions to the inequality \(-2x + 4 < 8\)?
   A. \(x < -4\)
   B. \(x > -4\)
   C. \(x < -2\)
   D. \(x > -2\)

97. Jorge cut a 40-inch rope into three pieces. The first piece is 18 inches long. The second piece is at least 9 inches long, but no greater than 15 inches long. Which inequality represents the length (\(x\)) of the third piece?
   A. \(7 \leq x \leq 13\)
   B. \(7 \leq x \leq 33\)
   C. \(13 \leq x \leq 27\)
   D. \(13 \leq x \leq 33\)

98. Which inequality is represented by this number line?
   A. \(-1 < x \leq 3\)
   B. \(-1 \leq x < 3\)
   C. \(x \leq -1\) or \(x > 3\)
   D. \(x < -1\) or \(x \geq 3\)

99. Which inequality is represented by this number line?
   A. \(x - 6 \geq 0\)
   B. \(x - 6 \leq 0\)
   C. \(x + 6 \geq 0\)
   D. \(x + 6 \leq 0\)

100. Which graph represents the inequality \(x + 2y > -4\)?
   A. ![Graph A](graph_a.png)
   B. ![Graph B](graph_b.png)
   C. ![Graph C](graph_c.png)
   D. ![Graph D](graph_d.png)

101. Which inequality is represented by this graph?
   A. \(y \geq \frac{1}{2}x + 3\)
   B. \(y < \frac{1}{2}x + 3\)
   C. \(y > \frac{1}{2}x + 3\)
   D. \(y \leq \frac{1}{2}x + 3\)

102. Juan is three years older than Pedro. The sum of their ages is less than 27. Let \(x\) represent Pedro’s age. Which inequality can be used to find the possibilities of Pedro’s age?
   A. \(2x + 3 > 27\)
   B. \(2x + 3 < 27\)
   C. \(2x + 3 \geq 27\)
   D. \(2x + 3 \leq 27\)
Algebra I EOI Test review

103. What is the solution to this graphed system of equations?
   A (0, 1)
   B (-2, 3)
   C (1, -2)
   D (4, 0)

104. The graph shows two options to buy tickets for amusement park rides. Jake can pay $12 for a daily pass or the ride can pay $1.25 per ride.

   Ticket Options
   - Pay per Ride
   - Daily Pass

   For what number of rides is the cost of both options the same?
   A 7 rides
   B 8 rides
   C 9 rides
   D 10 rides

105. \[
   \begin{align*}
   y &= x + 2 \\
   y &= -x + 4
   \end{align*}
   \]
   What is the y-value of the solution to this system of equations?
   A 1
   B 3
   C 4
   D 6

106. \[
   \begin{align*}
   x + y &= 4 \\
   2x + 3y &= -2
   \end{align*}
   \]
   What is the x-value of the solution to this system of equations?
   A 2
   B 6
   C 10
   D 14

107. Hanna has $11.20 in a jar that contains only nickels and dimes. There are 140 coins in the jar. How many dimes are in Hanna’s jar?
   A 28 dimes
   B 42 dimes
   C 56 dimes
   D 84 dimes

108. Matt starts with $15 and saves $10 a week. At the same time, Julie starts with $45 and saves $5 a week. In how many weeks will they have the same amount of money?
   A 2 weeks
   B 4 weeks
   C 6 weeks
   D 8 weeks

109. The stem-and-leaf graph shows the room temperature over a one-month period in Norman, Oklahoma.

<table>
<thead>
<tr>
<th>Stem</th>
<th>Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>2 3 5 6 8 9</td>
</tr>
<tr>
<td>7</td>
<td>2 3 6 8 9 9</td>
</tr>
<tr>
<td>8</td>
<td>0 2 3 5 6 8 9</td>
</tr>
<tr>
<td>9</td>
<td>0 0 1 1 4 9</td>
</tr>
</tbody>
</table>

   Which of these is not an advantage of presenting the data in a stem-and-leaf graph?
   A The shape of the data is apparent.
   B It is easy to find the mode of the data.
   C The data is organized from least to greatest.
   D It is easy to determine which day of the month had the greatest temperature.

110. James made a circle graph showing how he spent last month's allowance of $80.

   - Gifts $10
   - Movies $10
   - Clothes $10
   - Food $10
   - Gas $10

   Which graph best reflects the information in the circle graph?
   A James' Allowance
   B James' Allowance

111. The box-and-whisker plot below summarizes the ages of the members of a health club.

   - Members' Ages
   - What information is conveyed on this box-and-whisker plot that is not conveyed by a bar graph of the same data?
     A the mean age of the members
     B the median age of the members
     C the most common age of the members
     D the number of members of the health club

112. Brian recorded the maximum temperature each day for 14 days and made this graph to display the results.

   - High Temperatures
   - Between which two days did the maximum temperature change the most?
     A Day 2 and Day 3
     B Day 6 and Day 7
     C Day 11 and Day 12
     D Day 12 and Day 13
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113. Jane recorded the scores she received on tests compared with the number of hours she watched television the nights before the tests. TV Hours vs. Grades

Jane is planning to watch a 3-hour television movie the night before her algebra test. According to the data, what would be the best prediction for Jane’s test score?

A 75
B 80
C 85
D 90

114. The graphs shown compare two quarterbacks’ performances over the past three years. Each graph compares the number of touchdowns and the number of interceptions.

The table below shows the number of visitors to a theme park on each of the four Wednesdays in June.

Visitors to the Park

<table>
<thead>
<tr>
<th>Date</th>
<th>Number of Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 5</td>
<td>1,971</td>
</tr>
<tr>
<td>July 12</td>
<td>2,060</td>
</tr>
<tr>
<td>July 19</td>
<td>1,980</td>
</tr>
<tr>
<td>July 26</td>
<td>2,177</td>
</tr>
</tbody>
</table>

The park manager wants to predict the total number of people who will visit the park on the five Wednesdays in July. Which of these is the best estimate?

A 6,500 visitors
B 8,000 visitors
C 10,000 visitors
D 14,000 visitors

115. The frequency table shows the prizes offered in a school raffle. There are 1,000 total tickets for the raffle.

<table>
<thead>
<tr>
<th>Prize</th>
<th>Number of Winning Tickets</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500</td>
<td>1</td>
</tr>
<tr>
<td>$20</td>
<td>9</td>
</tr>
<tr>
<td>$10</td>
<td>50</td>
</tr>
<tr>
<td>$5</td>
<td>400</td>
</tr>
<tr>
<td>Free movie ticket</td>
<td>500</td>
</tr>
</tbody>
</table>

A local business purchased 100 tickets. How many free movie tickets should the business expect to win?

A 10 movie tickets
B 20 movie tickets
C 50 movie tickets
D 100 movie tickets

117. Judy has test scores of 82, 75, and 78. What does she need to score on her next test so that she has an average test score of 80?

A 75
B 78
C 80
D 85

118. A bag contains 16 red checkers and 16 black checkers. Anne removes 1 black checker and 2 red checkers from the bag and does not replace them. She then reaches into the bag and selects a checker at random. What is the probability that the checker is red?

A \( \frac{1}{2} \)
B \( \frac{14}{15} \)
C \( \frac{15}{25} \)
D \( \frac{15}{26} \)

119. Of the first 80 customers to use a gum ball machine, 25 received blue gum balls and 35 received yellow gum balls. Carlos purchases a gum ball. Based on this information, what is the probability that his gum ball is neither blue nor yellow?

A \( \frac{1}{8} \)
B \( \frac{5}{7} \)
C \( \frac{7}{12} \)
D \( \frac{11}{16} \)

120. Seven students had a long jump competition. Each student jumped a different length. Joan was one of the students in the competition. What is the probability that Joan’s jump was greater than the median jump length?

A \( \frac{1}{2} \)
B \( \frac{1}{3} \)
C \( \frac{1}{2} \)
D \( \frac{1}{7} \)

121. Tom throws snowballs at a target his dad made for him. The target is a square board with a circle with a 10-inch radius drawn on it, as shown below. Tom manages to hit the board every time, but his shots are totally random.

What is the approximate probability that his next shot that hits the target will hit outside the circle?

A 0.22
B 0.30
C 0.70
D 0.79
122. Which equation best represents the line of best fit for this scatter plot?
A. \( y = 4x - 4 \)
B. \( y = 4x - 2 \)
C. \( y = x - 4 \)
D. \( y = x - 2 \)

123. Jane recorded the scores she received on tests compared with the number of hours she watched television the nights before the tests.

What does the scatter plot imply about the relationship between her test scores and the number of hours of television she watched the night before the test?
A. Jane's grades are going down.
B. Jane will never watch more than four hours of television.
C. Getting higher grades will cause Jane to watch less television.
D. Jane's lower grades tend to follow nights where she watched more television.

124. Tamara recorded the population of Medville for certain years in this table.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>1,512</td>
<td>1,698</td>
<td>1,607</td>
<td>1,791</td>
<td>1,924</td>
</tr>
</tbody>
</table>

She determined the line of best fit that models this data is \( y = 18x + 1,520 \), where \( x \) represents the number of years since 1985 and \( y \) represents the population. According to Tamara's model, what is the best prediction for the population of Medville in 1997?
A. 1,680
B. 1,700
C. 1,736
D. 1,797