

Name: _____

Unit 5 EOC Review

- The expression $\frac{24x^6y^3}{-6x^3y}$ is equivalent to
 - $-4x^2y^3$
 - $-4x^3y^3$
 - $-4x^9y^4$
 - $-4x^3y^2$
- What is the product of $3a^2b$ and $-2ab^3$?
 - a^2b^3
 - a^3b^4
 - $-6a^2b^3$
 - $-6a^3b^4$
- The expression $(2a)^{-4}$ is equivalent to
 - $-8a^4$
 - $\frac{16}{a^4}$
 - $-\frac{2}{a^4}$
 - $\frac{1}{16a^4}$
- The expression $(x^2z^3)(xy^2z)$ is equivalent to
 - $x^2y^2z^3$
 - $x^3y^2z^4$
 - $x^3y^3z^4$
 - $x^4y^2z^5$
- The product of $(-3xy^2)(5x^2y^3)$ is
 - $-8x^3y^5$
 - $-15x^3y^5$
 - $-15x^2y^5$
 - $-15x^3y^6$
- Simplify the following expression: $(4ab^2)^2$
 - $8a^2b^4$
 - $16ab^2$
 - $16a^2b^4$
 - $8ab^4$
- What is the value of 2^{-3} ?
 - $\frac{1}{6}$
 - $\frac{1}{8}$
 - -6
 - -8
- Which equation and ordered pair represent the correct vertex form and vertex for $j(x) = x^2 - 12x + 7$?
 - $j(x) = (x - 6)^2 + 43, (6, 43)$
 - $j(x) = (x - 6)^2 + 43, (-6, 43)$
 - $j(x) = (x - 6)^2 - 29, (6, -29)$
 - $j(x) = (x - 6)^2 - 29, (-6, -29)$
- The function $f(x) = 3x^2 + 12x + 11$ can be written in vertex form as
 - $f(x) = (3x + 6)^2 - 25$
 - $f(x) = 3(x + 6)^2 - 25$
 - $f(x) = 3(x + 2)^2 - 1$
 - $f(x) = 3(x + 2)^2 + 7$
- A model rocket is launched into the air from ground level. The height, in feet, is modeled by $p(x) = -16x^2 + 32x$, where x is the number of elapsed seconds. What is the total number of seconds the model rocket will be in the air?
 - 1
 - 2
 - 0
 - 16

11. Find the vertex for the quadratic equation and tell if the vertex is a maximum or a minimum: $y = -(x + 2)^2 - 4$.

- A. (1, -4), maximum
- B. (-2, -4), maximum
- C. (2, -4), minimum
- D. (-1, 2), minimum

12. The equation $h(t) = -16t^2 + 864t$ models the path of a rocket shot into the air. After how many seconds does the rocket hit the ground?

- A. 27 seconds
- B. 54 seconds
- C. 108 seconds
- D. 120 seconds

13. The equation $h(t) = -16t^2 + 32t + 128$ models the path of a ball thrown in the air from the top of a building. After how many seconds does the ball reach its maximum height?

- A. 1 second
- B. 2 seconds
- C. 3 seconds
- D. 4 seconds

14. What is the turning point, or vertex, of the parabola whose equation is $y = 3x^2 + 6x - 1$?

- A. (1, 8)
- B. (-1, -4)
- C. (-3, 8)
- D. (3, 44)

15. A ball is thrown straight up at an initial velocity of 54 feet per second. The height of the ball t seconds after it is thrown is given by the formula $h(t) = 54t - 12t^2$. How many seconds after the ball is thrown will it return to the ground?

- A. 9.2
- B. 6
- C. 4.5
- D. 4

16. What is the turning point (vertex) of the graph of the function $y = x^2 - 6x + 2$?

- A. (3, -7)
- B. (-3, -7)
- C. (3, 11)
- D. (-3, 11)

17. The coordinates of the turning point (vertex) of the graph of $y = 2x^2 - 4x + 1$ are

- A. (1, -1)
- B. (1, 1)
- C. (-1, 5)
- D. (2, 1)

18. Given the equation $(x - 6)^2 = y + 7$, find the vertex.

- A. (-7, 6)
- B. (7, -6)
- C. (-6, 7)
- D. (6, -7)

19. The function $-6t^2 + 5t + 56 = h$ is used to calculate the amount of time (t) in seconds it takes for an object to reach a certain height (h). According to this function, how many seconds will it take for the object to hit the ground?

- A. $-2\frac{2}{3}$
- B. 3.5
- C. -3.5
- D. 8

20. The results of a linear regression are shown below.

$$y = ax + b$$

$$a = -1.15785$$

$$b = 139.3171772$$

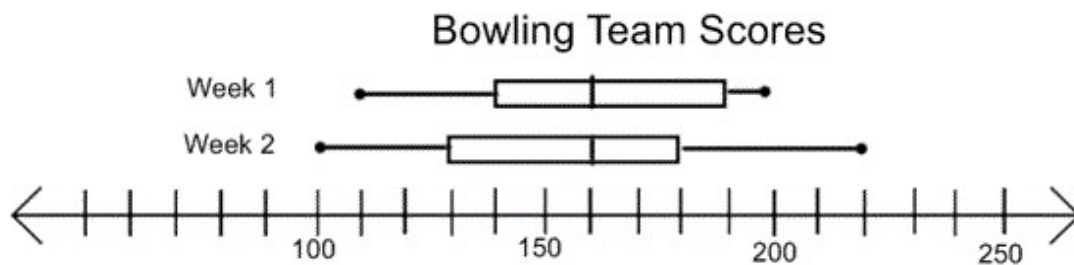
$$r = -0.896557832$$

$$r^2 = 0.8038159461$$

Which phrase best describes the relationship between x and y ?

- A. strong negative correlation
- B. strong positive correlation
- C. weak negative correlation
- D. weak positive correlation

21. A bowling team participates in a two week tournament and records the scores for each team member each week. The scores for both weeks are represented by the box plot below.



Which conclusion can be drawn from the box plots?

- A. The scores in week 1 and week 2 have the same median and interquartile range.
- B. The scores in week 1 have a greater median and a greater interquartile range than week 2.
- C. The scores in week 2 have a greater interquartile range but both data sets have the same median.
- D. The scores in week 2 have a greater median but both data sets have the same interquartile range.

22. A researcher surveyed five randomly selected employees from each of four different companies. The table shows the commute time of the surveyed employees.

COMMUTE TIMES FOR SELECTED EMPLOYEES

Amount of Time for Company 1 (minutes)	Amount of Time for Company 2 (minutes)	Amount of Time for Company 3 (minutes)	Amount of Time for Company 4 (minutes)
15	22	21	15
50	26	22	15
35	8	28	15
25	32	60	15
27	12	24	15

Based on the data, which company most likely has the longest average commute per employee?

- A. Company 1
- B. Company 2
- C. Company 3
- D. Company 4

23. The table below shows 6 students' overall averages and their averages in their math class.

Overall Student Average	92	98	84	80	75	82
Math Class Average	91	95	85	85	75	78

If a linear model is applied to these data, which statement best describes the correlation coefficient?

- A. It is close to -1 .
- B. It is close to 1 .
- C. It is close to 0 .
- D. It is close to 0.5 .

24. Which statistic can *not* be determined from a box plot representing the scores on a math test in Mrs. DeRidder's algebra class?

- A. the lowest score
- B. the median score
- C. the highest score
- D. the score that occurs most frequently

25. What is the sample standard deviation of the data in the table below, rounded to the *nearest tenth*?

Scores	Frequency
50	1
60	2
70	7
80	6
90	3
100	2

- A. 12.5
- B. 12.8
- C. 17.1
- D. 18.7

26. The table below shows the number of grams of carbohydrates, x , and the number of calories, y , of six different foods.

Carbohydrates (x)	Calories (y)
12	240
5	120
11	250
7	189
8	191
3.5	76

Which equation best represents the line of best fit for this set of data?

- A. $y = 23x + 6$
- B. $y = 19.8x + 24.4$
- C. $y = 17x$
- D. $y = 5.7x - 177.7$

27. The table below shows the number of points scored during the last six basketball games for two players.

	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6
Player 1	25	32	11	7	19	24
Player 2	3	12	25	14	8	29

How much higher is Player 1's median score than Player 2's median score?

- A. 10.5
- B. 8.5
- C. 6.5
- D. 4.5

28. Noj has the following test scores:

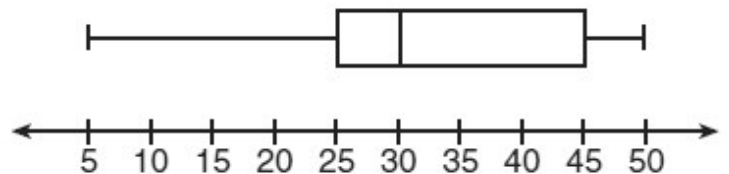
76, 84, 69, 74, 91

His teacher will allow him to retake the test on which he scored lowest. Noj wants an average of *at least* 82.

Determine the *least* number of additional points Noj must score on the retest.

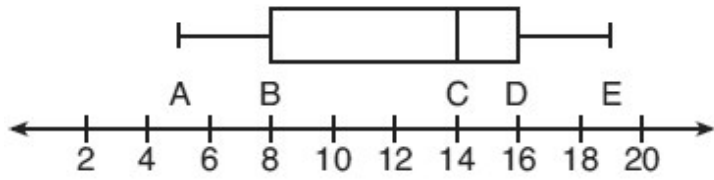
- A. 85
- B. 16
- C. 26
- D. 82

29. In the box-and-whisker plot below, what is the 2nd quartile?



- A. 25
- B. 30
- C. 45
- D. 50

30. The box-and-whisker plot shown below represents the number of magazine subscriptions sold by members of a club.



Which statistical measures do points B , D , and E represent, respectively?

- A. minimum, median, maximum
- B. first quartile, median, third quartile
- C. first quartile, third quartile, maximum
- D. median, third quartile, maximum