



Algebra 1 Practice Assessment: Form A

Below are the formulas you may find useful as you work the problems. However, some of the formulas may not be used. You may refer to this page as you take the test.

Linear Formulas

Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Linear Equations

Slope-intercept Form: $y = mx + b$

Point-slope Form: $y - y_1 = m(x - x_1)$

Standard Form: $Ax + By = C$

Arithmetic Sequence Formulas

Recursive: $a_n = a_{n-1} + d$

Explicit: $a_n = a_1 + (n - 1)d$

Exponential Formulas

Exponential Equation

$$y = ab^x$$

Geometric Sequence Formulas

Recursive: $a_n = r(a_{n-1})$

Explicit: $a_n = a_1 \cdot r^{n-1}$

Compound Interest Formula

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

Quadratic Formulas

Quadratic Equations

Standard Form: $y = ax^2 + bx + c$

Vertex Form: $y = a(x - h)^2 + k$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Average Rate of Change

The change in the y-value divided by the change in the x-value for two distinct points on a graph.

Statistics Formulas

Mean

$$\bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{n}$$

Interquartile Range

$$IR = Q_3 - Q_1$$

The difference between the first quartile and third quartile of a set of data.

Mean Absolute Deviation

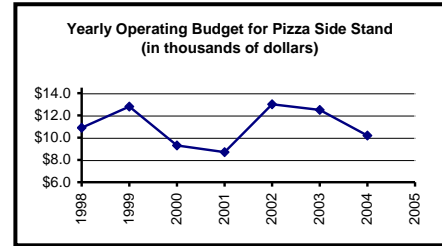
$$\frac{\sum_{i=1}^n |x_i - \bar{x}|}{n}$$

The sum of the distances between each data value and the mean, divided by the number of data values.

1. How many solutions would the following system of equations have? $\begin{cases} x = \frac{1}{2}y - 3 \\ y = 2x + 6 \end{cases}$
- A. Two
B. One
C. None
D. Infinitely Many

2. The operating budget for a small food side stand in a park should be under \$12000 for the year. How many of the years illustrated below did the pizza food side stand go over budget?

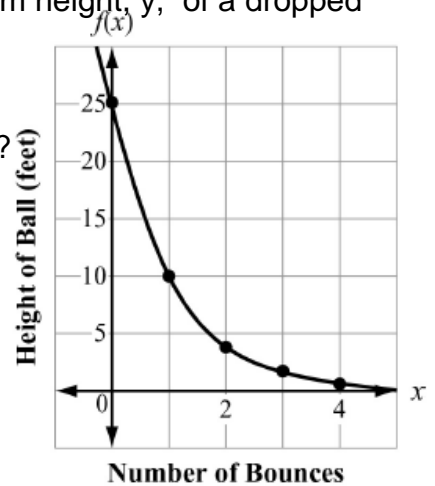
- A. 2001
B. 3
C. 2002
D. 4



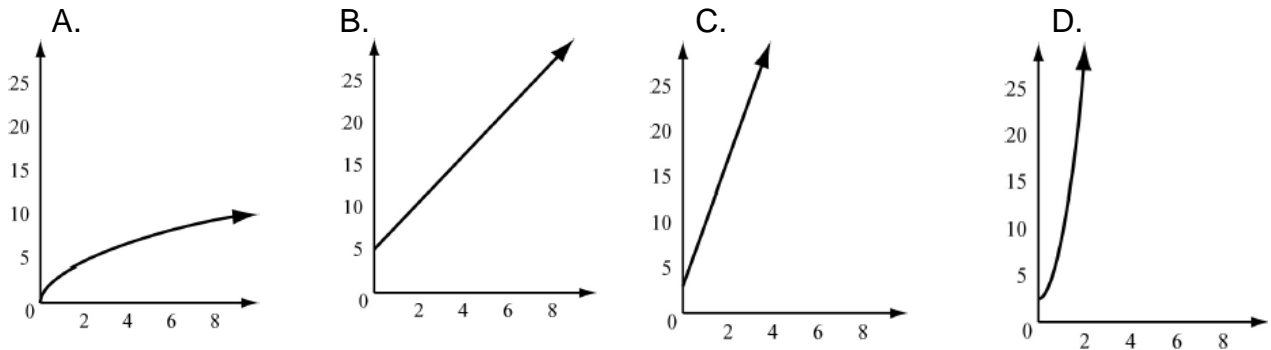
3. The function graphed on this coordinate grid models the maximum height, y , of a dropped ball in feet after its x^{th} bounce.

On which bounce was the height of the ball approximately 4 feet?

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



4. To rent a canoe, the cost is \$3 for the oars and life preserver, plus \$5 an hour for the canoe. Which graph models the cost of renting a canoe?



5. The points (0, 1), (1, 4), (2, 16), (3, 64) are on the graph of a function. Which equation represents that function?

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

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

C. $f(x) = 4^x$

D. $f(x) = 5^x$

6. The data below are final exam scores of 10 randomly selected students and the number of hours they studied for the exam

Hours, x	3	5	2	8	2	4	4	5	6	3
Scores, y	65	80	60	88	66	78	85	90	90	71

Determine the linear regression equation that best fits the data

A. $y = 5.09x + 55.23$

B. $y = 5.04x + 56.11$

C. $y = 5.03x + 56.19$

D. $y = 3.65x + 63.96$

7. Which expression represents all values of x for which the inequality $\frac{2}{3} + \frac{x}{3} > 1$ is true?

A. $x < 1$

B. $x > 1$

C. $x < 5$

D. $x > 5$

8. Given $f(x) = x^2 - 4x$, determine $f(6)$

A. $f(6) = -12$

B. $f(6) = -18$

C. $f(6) = 12$

D. $f(6) = 36$

9. What is the vertex of the graph of $f(x) = x^2 + 10x - 9$

A. (5, 66)

B. (5, -9)

C. (-5, -9)

D. (-5, -34)

10. Find the solution to the system of equations given: $2x + 10y = 20$
 $x + 3y = 6$

A. (12, -2)

B. (18, -4)

C. (-6, 4)

D. (0, 2)

11. Factory XYZ has already produced 427 units today. The factory produces 95 units per hour. Today's goal is to produce at least 1,282 units. If x represents the number of production hours, which of the following inequalities symbolizes this situation?

- A. $95x + 427 \geq 1282$ B. $427x + 95 \leq 1282$
 C. $427x + 95 \geq 1282$ D. $95x + 427 \leq 1282$

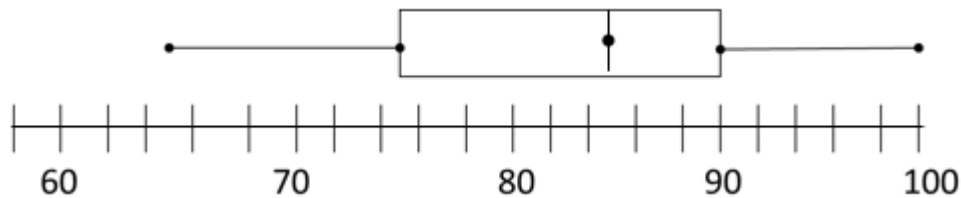
12. Generalize the pattern by finding a formula to calculate the n th term

1, 5, 9, 13, 17, 21

- A. $4n$ B. $n + 4$
 C. $4n - 3$ D. $4n + 4$
13. The table shows the price of a video game for different years since the game was released. During which time interval did the price decrease at the greatest rate?

Year	2000	2002	2003	2005	2007
Price (\$)	58	54	50	44	43

- A. 2000 to 2002 B. 2003 to 2005
 C. 2002 to 2003 D. 2005 to 2007
14. The box plot shows the test scores earned by students in a biology class. Which statement about their test scores is NOT true?



- A. The scores ranged from 65 to 100 B. The median score earned was an 85
 C. 25% of students scored less than 75 points on the test D. 50% of students had scores that ranged from 75 to 85 points
15. Using the frequency table below, out of all women in the sample, determine the percent of women that live off campus

- A. 25.4% B. 49.6%
 C. 98.3% D. 52.5%

	Live on Campus	Live off Campus	Total
Men	3216	4010	7226
Women	3824	3758	7582
Total	7040	7768	14,808

16. In 1997 a value of an object was \$5000. In 2012, it was worth \$9500. The annual percent growth has been constant. What is the annual percent growth?

A. 1.37%

B. 2.37%

C. 3.37%

D. 4.37%

17. Simplify

$$(2x^2 + 7x + 10) - (x^2 + 2x - 9)$$

A. $x^2 + 9x + 1$

B. $x^2 + 5x + 19$

C. $3x^2 + 9x + 1$

D. $2x^2 + 9x + 19$

18. Find the simplified product $\sqrt{8} \cdot \sqrt{98}$

A. $(2\sqrt{2})(7\sqrt{2})$

B. $14\sqrt{2}$

C. 28

D. $\sqrt{784}$

19. Factor $2x^2 - 11x - 21$

A. $(2x + 3)(x - 7)$

B. $(x + 3)(2x - 7)$

C. $(2x - 3)(x + 7)$

D. $(2x + 7)(x - 3)$

20. If the domain is $\{0, 2, -6\}$, what is the range of $y = -2x + 3$?

A. $\{0, 7, 29\}$

B. $\{0, 7, 15\}$

C. $\{3, -1, -9\}$

D. $\{3, -1, 15\}$

21. Which graph COULD represent the table of values?

x	-2	1	0	1	2
y	5	2	-1	-4	-7

A.



B.



C.



D.



22. Solve the following $2x^2 - 2x - 12 = 0$

A. $x = -4, 3$

B. $x = -3, 4$

C. $x = -2, 3$

D. $x = -6, 2$

23. Based on the tables, what common point do the equations $y = -x + 5$ and $y = 2x - 1$ share?

$y = -x + 5$	
x	y
-1	6
0	5
1	4
2	3
3	2

$y = 2x - 1$	
x	y
-1	-3
0	-1
1	1
2	3
3	5

A. (1,1)

B. (3,5)

C. (2,3)

D. (3,2)

24. Which data set has a mean less than or equal to 80, a median of 40, and a mode of 75?

A. {25, 30, 35, 40, 74, 75, 80}

B. {15, 40, 40, 75, 76, 77, 80}

C. {0, 38, 39, 40, 75, 75, 300}

D. {20, 30, 35, 40, 75, 75, 100}

25. A farmer owns a horse that can continuously run an average of 8 miles an hour for up to 7 hour. Let y be the distance the horse can travel for a given x amount of time in hours. The horse's progress can be modeled by a function.

Which of the following describes the domain of the function?

A. $0 \leq x \leq 7$

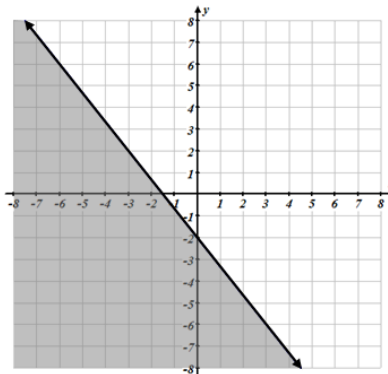
B. $0 \leq x \leq 56$

C. $0 \leq y \leq 7$

D. $0 \leq y \leq 56$

26. Which equation is equivalent to the formula $A = \frac{1}{2}bh$
- A. $b = \frac{2A}{h}$ B. $h = \frac{Ab}{2}$
- C. $\frac{1}{2}A = bh$ D. $2h = bA$

27. Identify the inequality graphed
- A. $y < -\frac{4}{3}x - 2$ B. $y \leq -\frac{4}{3}x - 2$
- C. $y \geq \frac{3}{4}x - 2$ D. $y \leq \frac{3}{4}x - 2$



28. Which number is irrational?
- A. 16.5% B. 0.0675
- C. $8\frac{3}{4}$ D. π

29. Mrs. Reed is decorating wreaths. She needs 24 in. of gold ribbon and 45 inches of white ribbon to tie around each wreath. The white ribbon is sold by the foot. About how many feet of white ribbon will Mrs. Reed need to make 18 wreaths?
- A. 30 ft. B. 50 ft.
- C. 60 ft. D. 70 ft.

30. Which of the following best describes the solutions to the following? $-6x^2 - 4x + 10 = 0$
- A. Two real rational solutions B. Two irrational solutions
- C. One real rational solution D. No real solutions

ANSWER KEY

1. D
2. B
3. B
4. C
5. C
6. B
7. B
8. C
9. D
10. D
11. A
12. C
13. C
14. D
15. B
16. D
17. B
18. C
19. A
20. D
21. B
22. C
23. C
24. D
25. A
26. A
27. B
28. D
29. D
30. A