

ALGEBRA 1
January 2018

input in
calc. 1

16. The 15 members of the French Club sold candy bars to help fund their trip to Quebec. The table shows the number of candy bars each member sold.

Number of Candy Bars Sold				
0	35	38	41	43
45	50	53	53	55
68	68	68	72	120

When referring to the data, which statement is **false**?

- (1) The mode is the best measure of central tendency for the data.
 (2) The data have two outliers. $\bar{x} = \text{mean} = 53.9$
 (3) The median is 53. $\text{median} = 53$
 (4) The range is 120. $\text{range} = 120$

0.5, 100

17. Given the set $\{x | -2 \leq x \leq 2, \text{ where } x \text{ is an integer}\}$, what is the solution of $-2(x-5) \leq 10$?

- (1) 0, 1, 2 (2) 1, 2 (3) -2, -1, 0 (4) -2, -1

18. If the pattern below continues, which equation(s) is a **recursive** formula that represents the number of squares in this sequence?



Design 1 Design 2 Design 3 Design 4

- (1) $y = 2x + 1$ *explicit*
 (2) $y = 2x + 3$
 (3) $a_1 = 3 \rightarrow \text{1st term}$
 $a_n = a_{n-1} + 2$
 (4) $a_1 = 1$
 $a_n = a_{n-1} + 2$

19. If the original function $f(x) = 2x^2 - 1$ is shifted to the left 3 units to make the function $g(x)$, which expression would represent $g(x)$?

- (1) $2(x-3)^2 - 1$ (2) $2(x+3)^2 - 1$ (3) $2x^2 + 2$ (4) $2x^2 - 4$

20. First consider the system of equations $y = -\frac{1}{2}x + 1$ and $y = x - 5$. *1 solution*

Then consider the system of inequalities $y > -\frac{1}{2}x + 1$ and $y < x - 5$. *infinite # of solutions*

When comparing the number of solutions in each of these systems, which statement is true?

- (1) Both systems have an infinite number of solutions.
 (2) The system of equations has more solutions.
 (3) **The system of inequalities has more solutions.**
 (4) Both systems have only one solution.

21. Nora inherited a savings account that was started by her grandmother 25 years ago. This scenario is modeled by the function $A(t) = 5000(1.013)^{t+25}$, where $A(t)$ represents the value of the account, in dollars, t years after the inheritance. Which function below is equivalent to $A(t)$?

- (1) $A(t) = 5000[(1.013^3)^{25}]$ (3) $A(t) = (5000)^t (1.013)^{25}$
 (2) $A(t) = 5000[(1.013)^t + (1.013)^{25}]$ (4) $A(t) = 5000(1.013)^t (1.013)^{25}$

16 1

17 2

18 3

19 2

20 3

21 4

ALGEBRA 1
January 2018

22. The value of x which makes $\frac{2}{3}\left(\frac{1}{4}x - 2\right) = \frac{1}{5}\left(\frac{4}{3}x - 1\right)$ true is

- (1) -10 (2) -2 (3) -9.09 (4) -11.3 22 4

23. Which quadratic function has the largest maximum over the set of real numbers?

$f(x) = -x^2 + 2x + 4$
(1)

$g(x) = -(x-5)^2 + 5$
(3)

vertex

x	k(x)
-1	-1
0	3
1	5
2	5
3	3
4	-1

(2)

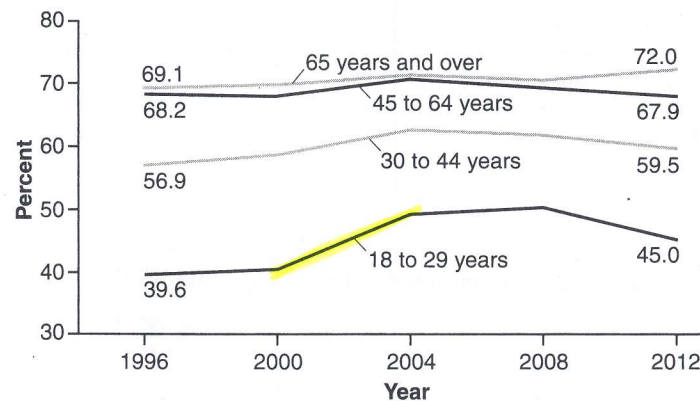
x	h(x)
-2	-9
-1	-3
0	1
1	3
2	3
3	1

(4)

23 2

24. Voting rates in presidential elections from 1996-2012 are modeled below.

Voting Rates in Presidential Elections, by Age, for the Voting-Age Citizen Population: 1996-2012



Which statement does **not** correctly interpret voting rates by age based on the given graph?

- (1) For citizens 18-29 years of age, the **rate of change** in voting rate *was* greatest between years 2000-2004.
 (2) From 1996-2012, the average **rate of change** was positive for only two age groups.
 (3) About 70% of people 45 and older voted in the 2004 election.
 (4) The voting rates of eligible age groups lies between 35 and 75 percent during presidential elections every 4 years from 1996-2012.

24 2

Hw 5/29

ALGEBRA 1

August 2018

$$\left(\frac{b}{2}\right)^2 = \left(\frac{4}{2}\right)^2 = (2)^2 = 4$$

↑
factor

30. Solve the following equation by completing the square: $x^2 + 4x = 2$

$$x^2 + 4x + \boxed{4} = 2 + \boxed{4}$$

$$\sqrt{(x+2)^2} = \sqrt{6}$$

$$x+2 = \pm\sqrt{6}$$

$$\frac{-2}{-2} = \frac{\pm\sqrt{6}}{-2}$$

$$x = -2 \pm \sqrt{6}$$

31. The students in Mrs. Lankford's 4th and 6th period Algebra classes took the same test. The results of the scores are shown in the following table:

	\bar{x}	σ_x	n	min	Q_1	med	Q_3	max
4th Period	77.75	10.79	20	58	69	76.5	87.5	96
6th Period	78.4	9.83	20	59	71.5	78	88	96

Based on these data, which class has the largest spread of test scores? Explain how you arrived at your answer.

4th
range = $96 - 58$
38
IQR = $87.5 - 69$
18.5

6th
range = $96 - 59$
37
IQR = $88 - 71.5 = 16.5$

measures of spread refers to the range, quartiles, IQR, variance and standard deviation

answer 4th period has the largest spread of scores b/c the range & IQR is greater.

32. Write the first five terms of the recursive sequence defined below.

$$a_1 = 0$$

$$a_n = 2(a_{n-1})^2 - 1, \text{ for } n > 1$$

$$a_1 = 0$$

$$a_2 = 2(0)^2 - 1$$

$$a_2 = -1$$

$$a_3 = 2(-1)^2 - 1$$

$$a_3 = 1$$

$$a_4 = 2(1)^2 - 1$$

$$a_4 = 1$$

$$a_5 = 2(1)^2 - 1$$

$$a_5 = 1$$

68

HW p. 24 & p. 25, p. 48 5/29

$$17) -2 \leq x \leq 2$$

$$-2(x-5) < 10$$

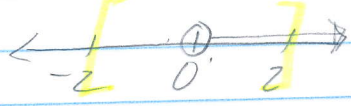
$$-2x + 10 < 10$$

$$\underline{-10 \quad -10}$$

$$-2x < 0$$

$$\underline{-2 \quad -2}$$

$$x > 0$$



choice 2

$$18) a_n = a_{n-1} + d$$

$$a_n = a_{n-1} + 2$$

choice 3

$$19) f(x) = |x \begin{matrix} \nearrow \text{left up} \\ \downarrow \text{right down} \end{matrix} \pm h| \pm k$$

$$f(x) = 2x^2 - 1$$

$$g(x) = 2(x+3)^2 - 1$$

$$* 22) \left[\frac{2}{3} \left(\frac{1}{4}x - 2 \right) = \frac{1}{5} \left(\frac{4}{3}x - 1 \right) \right]$$

get rid of den.

mult. by LCD

15

$$10 \left(\frac{1}{4}x - 2 \right) = 3 \left(\frac{4}{3}x - 1 \right)$$

$$\frac{10x}{4} - 20 = 4x - 3$$

$$\frac{4 \cdot +20}{4} \quad \frac{+20}{4}$$

$$4 \left[\frac{10x}{4} = 4x + 17 \right] 4$$

* mult by LCD

$$10x = 16x + 68$$

$$\underline{-16x \quad -16x}$$

$$-6x = 68$$

$$\underline{-6 \quad -6}$$

$$x = -11.3$$

10x =

23) $f(x) = -x^2 + 2x + 4$
vertex = $(1, \underline{5})$

$g(x) = -(x-5)^2 + 5$
vertex = $(5, \underline{5})$

$k(x) = -x^2 + 3x + 3$
vertex = $(1.5, \underline{5.25})$

$h(x) =$
smallest vertex

* use L_1, L_2 to get
equation:
Quad Reg

24) $\frac{\Delta y}{\Delta x} = \frac{10}{4} = 2.5$

p. 48

31) Measures of spread refers to the range, quartiles, interquartile range, variance, and standard deviation.