

ALGEBRA 1

June 2017

10. Which polynomial function has zeros at $-3, 0,$ and 4 ?

(1) $f(x) = (x + 3)(x^2 + 4)$

(3) $f(x) = x(x + 3)(x - 4)$

(2) $f(x) = (x^2 - 3)(x - 4)$

(4) $f(x) = x(x - 3)(x + 4)$

10 3

11. Jordan works for a landscape company during his summer vacation. He is paid \$12 per hour for mowing lawns and \$14 per hour for planting gardens. He can work a maximum of 40 hours per week, and would like to earn at least \$250 this week. If m represents the number of hours mowing lawns and g represents the number of hours planting gardens, which system of inequalities could be used to represent the given conditions?

(1) $m + g \leq 40$

(3) $m + g \leq 40$

$12m + 14g \geq 250$

$12m + 14g \leq 250$

(2) $m + g \geq 40$

(4) $m + g \geq 40$

$12m + 14g \leq 250$

$12m + 14g \geq 250$

11 1

12. Anne invested \$1000 in an account with a 1.3% annual interest rate. She made no deposits or withdrawals on the account for 2 years. If interest was compounded annually, which equation represents the balance in the account after the 2 years?

(1) $A = 1000(1 - 0.013)^2$

(3) $A = 1000(1 - 1.3)^2$

(2) $A = 1000(1 + 0.013)^2$

(4) $A = 1000(1 + 1.3)^2$

12 2

13. Which value would be a solution for x in the inequality $47 - 4x < 7$?

(1) -13

(2) -10

(3) 10

(4) 11

13 4

14. Bella recorded data and used her graphing calculator to find the equation for the line of best fit. She then used the correlation coefficient to determine the strength of the linear fit. Which correlation coefficient represents the strongest linear relationship?

(1) 0.9

(2) 0.5

(3) -0.3

(4) -0.8

14 1

15. The heights, in inches, of 12 students are listed below.

- 61, 67, 72, 62, 65, 59, 60, 79, 60, 61, 64, 63

Which statement best describes the spread of these data?

(1) The set of data is evenly spread.

(2) The median of the data is 59.5.

(3) The set of data is skewed because 59 is the only value below 60.

(4) 79 is an outlier, which would affect the standard deviation of these data.

calc
mean = 64
median = 62.5
min = 59
use whisker plot
box & plot
 $\ominus 1 = 60.5$
 $\ominus 3 = \text{low max } 79$

15 4

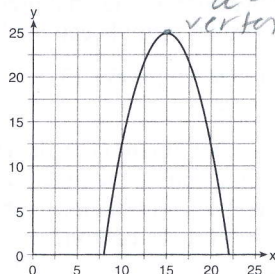
16. The graph of a quadratic function is shown. An equation that represents the function could be

(1) $q(x) = \frac{1}{2}(x + 15)^2 - 25$

(2) $q(x) = -\frac{1}{2}(x + 15)^2 - 25$

(3) $q(x) = \frac{1}{2}(x - 15)^2 + 25$

(4) $q(x) = -\frac{1}{2}(x - 15)^2 + 25$



$a = -$
vertex (15, 25)

16 4

HW 5/3

rational ALGEBRA 1
June 2017

27. State whether $\sqrt{7} - \sqrt{2}$ is rational or irrational. Explain your answer.

5.585786438.
irrational because $\sqrt{2}$ is
an irrational #.
The difference of a rational
and an irrational # is
always irrational.

28. The value, $v(t)$, of a car depreciates according to the function $v(t) = P(0.85)^t$, where P is the purchase price of the car and t is the time, in years, since the car was purchased. State the percent that the value of the car decreases by each year. Justify your answer.

$v = P(0.85)^t$ $A = P(1+r)^n$
the percent value is 15%. $A = P(1-0.15)^t$
Subtract 0.85 from 1 to get 0.15 which is 15%.

29. A survey of 100 students was taken. It was found that 60 students watched sports, and 34 of these students did not like pop music. Of the students who did not watch sports, 70% liked pop music. Complete the two-way frequency table.

	Watch Sports	Don't Watch Sports	Total
Like Pop	26	28	54
Don't Like Pop	34	12	46
Total	60	40	100

August 2017

20. How many of the equations listed below represent the line passing through the points (2, 3) and (4, -7)?

$$5x + y = 13$$

$$y + 7 = -5(x - 4)$$

$$y = -5x + 13$$

$$y - 7 = 5(x - 4)$$

(1) 1

(2) 2

(3) 3

(4) 4

20 3

21. The Ebola virus has an infection rate of 11 % per day as compared to the SARS virus, which has a rate of 4% per day.

$$y = 1(1+0.11)^x$$

$$y = 30(1+0.04)^x$$

If there were one case of Ebola and 30 cases of SARS initially reported to authorities and cases are reported each day, which statement is true?

(1) At day 10 and day 53 there are more Ebola cases.

(2) At day 10 and day 53 there are more SARS cases.

(3) At day 10 there are more SARS cases, but at day 53 there are more Ebola cases.

(4) At day 10 there are more Ebola cases, but at day 53 there are more SARS cases.

21 3

22. 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 ?

(1) strong negative correlation

(3) weak negative correlation

(2) strong positive correlation

(4) weak positive correlation

22 1

23. Abigail's and Gina's ages are consecutive integers. Abigail is younger than Gina and Gina's age is represented by x . If the difference of the square of Gina's age and eight times Abigail's age is 17, which equation could be used to find Gina's age?

(1) $(x + 1)^2 - 8x = 17$

(3) $x^2 - 8(x + 1) = 17$

(2) $(x - 1)^2 - 8x = 17$

(4) $x^2 - 8(x - 1) = 17$

23 4

24. Which system of equations does *not* have the same solution as the system below?

$$4x + 3y = 10$$

$$-6x - 5y = -16$$

(1) $-12x - 9y = -30$

(3) $24x + 18y = 60$

$12x + 10y = 32$

$-24x - 20y = -64$

(2) $20x + 15y = 50$

(4) $40x + 30y = 100$

$-18x - 15y = -48$

$36x + 30y = -96$

24 4

34. The heights, in feet, of former New York Knicks basketball players are listed below.

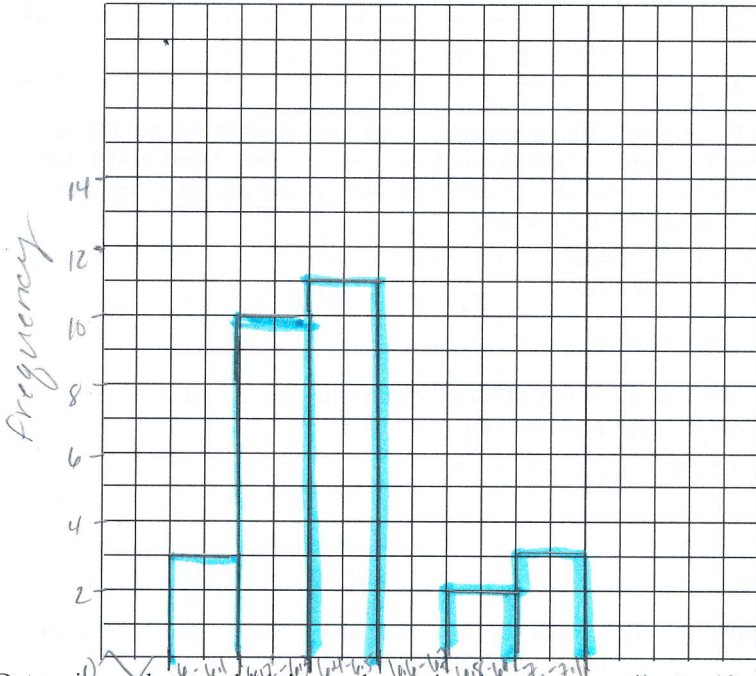
6.4	6.9	6.3	6.2	6.3	6.0	6.1	6.3	6.8	6.2
6.5	7.1	6.4	6.3	6.5	6.5	6.4	7.0	6.4	6.3
6.2	6.3	7.0	6.4	6.5	6.5	6.5	6.0	6.2	

Using the heights given, complete the frequency table.

Interval	Frequency
6.0 - 6.1	3
6.2 - 6.3	10
6.4 - 6.5	11
6.6 - 6.7	0
6.8 - 6.9	2
7.0 - 7.1	3

cumul
3
13
24
24
26
29

Based on the frequency table created, draw and label a frequency histogram on the grid below.



Determine and state which interval contains the upper quartile. Justify your response.

$$\frac{3}{4}(29) = 21.75$$

↓
22 #5

6.4 - 6.5
contains the
upper quartile