Name _____ Period _____ Date _____ Score _____

Benchmark Test 2

1. Solve $30 = 5p - 10$.

A. 4

B. 8

C. 25

D. 35

2. TENNIS The standard width of a tennis court is 27 feet. If 1 meter ≈ 3.3 feet, what is the width of the tennis court in meters? Round to the nearest tenth, if necessary.

_____ meters

3. Determine whether the function is linear. If it is, state the rate of change.

x	−6	−3	0	3	6
y	7	5	3	1	−1

_____

4. For $f(x) = -3x + 7$, find the value of $f(-1) + f(4)$.

A. −9

B. −5

C. 5

D. 9

5. FRUIT Lilly buys fresh fruit from a fruit stand. Apples cost $5 per pound and oranges cost $4 per pound. She has $40 to spend. The table shows the function relating the number of pounds of apples, x, and the number of pounds of oranges, y, Lilly could purchase.

Apples (lb)	Oranges (lb)
x	y
0	10
1	8.75
2	7.5
4	5
6	2.5
8	0

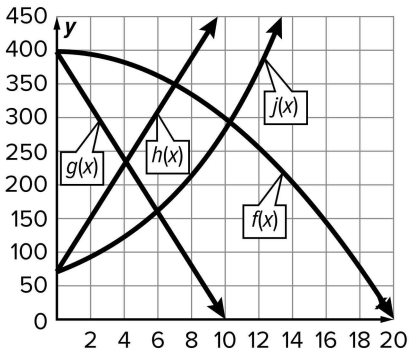
The _____-intercept shows that if Lilly buys only apples, she can buy _____ pounds. The _____ -intercept shows that if Lilly buys only oranges, she can buy _____ pounds.

6. MAINTENANCE Three maintenance stations are going to be placed along a highway. One larger station will be placed at mile marker 178. Each of the two smaller stations need to be placed along the highway at a location 40 miles from the larger station. Write and solve an absolute value equation to find the locations of the two smaller stations.

_____

_____

7. OVEN The temperature inside an oven after being turned on can be represented by a function. Based on the given information, which graph could represent the temperature of the oven y, in °F, as a function of time x, in minutes?



***x*-intercept:** none

***y*-intercept:** 70°F

Linear or Nonlinear: The graph of the function is linear.

Positive: for time greater than 0

Increasing: for time greater than 0

End Behavior: As the number of minutes increases, the temperature of the oven increases.

A. $f(x)$

B. $g(x)$

C. $h(x)$

D. $j(x)$

8. Select the transformations of $g(x) = 2|-x + 6|$ as it relates to the parent function.

A. Translated right 6 units

B. Translated left 6 units

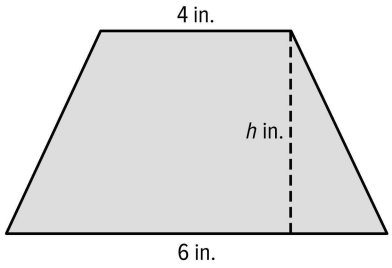
C. Reflected over y-axis

D. Reflected over x-axis

E. Vertical Stretch

F. Horizontal Compression

9. GEOMETRY The area of a trapezoid is given by the formula $A = \frac{1}{2}h(a + b)$, where h is the height and a and b are the measures of the two bases.



What is the height of a trapezoid with an area of 28 square inches if the two bases measure 4 inches and 6 inches?

_____ inches

10. SAVINGS Omar deposited $1000 into a savings account that has an annual simple interest rate of 0.6%. Find the amount in the savings account after 8 years.

$ _____

Name _____ Period _____ Date _____ Score _____

11. Which equation represents a line passing through the point (8, 33) with a slope of 3?

A. $y = 3x - 15$

C. $y = 3x - 8$

B. $y = 3x + 33$

D. $y = 3x + 9$

12. RACING The number of participants in a 5K road race is capped at 1000. The data in the table show the number of participants who finished each race and the temperature at the start time of each race.

Temp. (°F)	61	55	68	51	64	49
Finishers	820	860	780	900	810	910

a. Use the points (49, 910) and (68, 780) to write an equation for the line of fit in slope-intercept form, where x is the temperature in °F and y is the number of finishers. Round to the nearest hundredth, if necessary.

Line of fit: _____

b. If the trend continues, about how many participants would be expected to finish if the temperature at the start time is 72°? _____

13. READING Yolanda's assignment is to read at least 45 pages of a novel. Yolanda has read 28 pages. How many pages p does Yolanda have left to read? Write an inequality that represents this situation. Then solve the inequality.

Inequality: $p +$ _____ $\geq$ _____

Solution: $p \geq$ _____

14. Which shows a system of equations that can be entered into a graphing calculator to solve $16.9x + 3.2 = 2.3x - 18$?

A. $0 = 16.9x + 3.2$ and $0 = 2.3x - 18$

B. $y = 19.2 - 14.8$

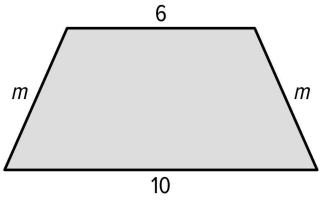
C. $y = 16.9x + 3.2$ and $y = 2.3x - 18$

D. $y = 16.9x$ and $y = 2.3x$

15. Write the equation of the line represented by $y = -\frac{2}{3}x + 4$ in standard form.

_____

16. The perimeter of this isosceles trapezoid is less than 26.



Using set-builder notation, write the possible values for the length of the sides labeled m.

_____

17. Solve the system of equations using elimination.

$7x + 3y = -14$

$-7x + 3y = 14$

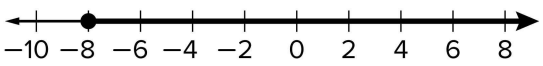
_____

18. ATTENDANCE A study of 100 randomly selected students from first through sixth grade finds a strong correlation between school attendance and math ability. Can you conclude that attending school causes students to perform better in math? Why or why not?

19. Solve $2 - m > 9$ or $1 + 3m > 19$. Write the solution using set-builder notation.

_____

20. Select all the inequalities for which the solutions are shown on the graph.



A. $-1 + 6t \leq 4(t + 3) + 3$

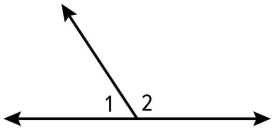
B. $-2(t + 11) - 3t - 21 \leq 3(t + 7)$

C. $-5(t + 4) + 6t + 18 > -10$

D. $6(t - 1) - 19 \geq 23$

E. $3t - 10 \leq 4t - 6 + 4$

21. Supplementary angles are two angles that have measures with a sum of 180 degrees. Angles 1 and 2 are supplementary and the measure of angle 2 is 20 degrees less than three times the measure of angle 1. Write a system of equations and use substitution to find the measures of angles 1 and 2.



22. BUSINESS The table shows a company's revenue, in millions of dollars, each year since the company started in 2000. Use a graphing calculator to find an equation for the best-fit line for the data.

Years Since 2000	1	2	3	4	5	6
Revenue (millions of dollars)	1.6	2.4	3.1	3.5	4.2	4.6

Part A Interpret the slope and *y*-intercept of the regression equation in the context of the data.

The slope means that the company's revenue
[A. increased B. decreased] by about [A. 0.59 B. 1.15 C. 1.75] million dollars each year.

The *y*-intercept means that the company's revenue in
[A. 0 B. 2000 C. 2001] was

[A. 0.59 B. 1.15 C. 1.75] million dollars.

Part B Estimate the company's revenue in 2020. Round to the nearest hundredth. $ _____ million

23. The solution set of $5x + 2y \leq 10$ is graphed on a coordinate plane. Complete each statement about the graph so that they are true.

The test point (0, 0) [A. is B. is not] a solution of the inequality, so the half-plane that [A. does B. does not] contain this point will be shaded.

The boundary will be a [A. dashed B. solid] line through

(0, [A. 0 B. 2 C. 5]) and ([A. 0 B. 2 C. 5], 0).

24. Mandy solved this system of equations using elimination. She says that the system has no solutions. Is her statement *true* or *false*?

$9x + 15y = 6$

$3y = -5x + 2$

A. True

B. False

25. FACTORY The weekly target output for a factory is 300 to 350 units. The factory operates Monday through Friday.

a. Write a compound inequality to represent the target output for one day, x.

_____

b. Solve the inequality. _____

26. Determine whether each ordered pair is a solution to the system of inequalities.

$y \geq -x$

$2x + y > 2$

(–5, 6) A. Yes B. No

(2, 3) A. Yes B. No

(0, 0) A. Yes B. No

(2, –2) A. Yes B. No

(4, –5) A. Yes B. No

(5, 6) A. Yes B. No

27. POPCORN A movie theater sells popcorn in a reusable bucket for $3.50. They offer refills for $2.50 each.

Write an equation in slope-intercept form to model the cost in dollars, y, for x refills.

_____

28. Determine whether the system has *no solution*, *one solution*, or *infinitely many solutions*. If the system has one solution, name it.

$x + y = 5$

$3x + 3y = 15$

_____

29. Determine whether the system of equations is *consistent* or *inconsistent* and if it is *independent* or *dependent*.

$2y + 10 = -5x$

$10x + 4y = -20$

A. consistent and dependent

B. consistent and independent

C. inconsistent and dependent

D. inconsistent and independent

30. Solve $|h - 2| < 14$.

$\{h|$ _____ $< h <$ _____$\}$