April 29, 2019, Monday

Get a sheet of colored paper!

From the Algebra Formula Sheet, Copy:
Linear Formula - Slope formula, Linear equations, Arithmetic forms

Algebra 1 EOC study Guide **Unit 1** Name _____

1) Which expression results in a rational number?
Given: $L = \sqrt{2}$ $M = 3\sqrt{3}$ $N = \sqrt{16}$ $P = \sqrt{9}$

a) L + M
b) M + N
c) N + P
d) P + L

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2) Find the difference between the polynomials: $(-5x^2 + x - 5) - (-3x^2 - 8x - 3)$

a) $-2x^2 + 9x + 5$
b) $-2x^2 + 9x - 2$
c) $-2x^2 + 9x - 8$
d) $-2x^2 - 7x - 2$

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3) Find the product to the following expression: $(x - 15)(x - 3)$.

a) $x^2 - 18x - 18$
b) $x^2 - 18x - 45$
c) $x^2 - 18x + 45$
d) $x^2 - 12x + 45$

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4) Which answer choice is equivalent to the expression $(x + 6)^2$?

a) $x^2 + 12x + 12$
b) $x^2 + 12x + 36$
c) $x^2 + 6x + 36$
d) $x^2 + 36$

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5) Charles runs at a rate of 12 kilometers per hour. What is Charles' speed in meters per minute?

a) 12 meters per minute
b) 20 meters per minute
c) 120 meters per minute
d) 200 meters per minute

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6) How many terms would be in the *simplified* expression $22x^3 + 14x^2 + 3x + 7 - 10x^2$?

a) 5
b) 4
c) 3
d) 2

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7) Convert 3 weeks to hours.

a) 10.3 hours
b) 55 hours
c) 504 hours
d) 875 hours

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8) Which statement is TRUE about the value of the expression $4(\sqrt{8} + 4)$?

a) It is irrational because the product of an irrational number and a rational number is irrational.
b) It is rational because the product of two rational numbers is rational.
c) It is rational because the product of a rational number and an irrational number is rational.
d) It is irrational because the product of two irrational numbers is irrational.

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9) Which mathematical term describes both the number 5 and the sum $(2 + x)$ in the expression $5(2 + x)$?

a) Coefficient
b) Constant
c) Factor
d) Variable

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10) Andrew purchased some drinks and some chips. Each bag of chips cost $2.00 and each drink cost $2.50. The expression above gives the total amount of money spent by Andrew on chips and drinks. What is the meaning of the term $2.5y$?

$$2x + 2.5y$$

a) The number of drinks purchased by Andrew
b) The number of chips purchased by Andrew
c) The cost of one drink
d) The total amount spent on drinks by Andrew

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11) A bird chirps 10 times a minute. Determine how many times the bird would chirp in a day.

a) 144 times per day
b) 1,440 times per day
c) 14,400 times per day
d) 144,000 times per day

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12) After simplifying the expression, how many terms are there and what is the leading coefficient?
$9n + 7m^2 - 2m + 8 + 4m$

a) Terms: 2, leading coefficient: 7
b) Terms: 4, leading coefficient: 7
c) Terms: 2, leading coefficient: 9
d) Terms: 4, leading coefficient: 9
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13) The average time it takes Greg to mow a lawn can be defined by the expression $28x + 5$ where x is the number of lawns. In this scenario, what does the number 28 represent?

a) The number of lawns Greg mows
b) The average time it takes to mow one lawn
c) The average price Greg charges per lawn
d) The average time it takes to mow multiple lawns

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14) What are the term(s), coefficient(s), and constant(s) described by the phrase, "the cost of 6 pizzas, c being the cost of each pizza, and a delivery charge of $5?"

a) Term: 6c, coefficient: 6, constant: 5
b) Term: 6c and 5, coefficient: 6, constant: 5
c) Term: 6c and 5, coefficient: 5, constant: 6
d) Term: 11c, coefficient: 11, constant: none

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15) The number of tennis shoes produced by a factory is given by the expression above where the variable x represents the number of hours that the factory has been open. What is the meaning of the coefficient in the expression $115x + 350$?

a) The factory started the day with 115 shoes.
b) The factory produces 115 shoes every hour.
c) The factory produces 350 shoes every hour.
d) The factory started the day with 350 shoes.

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16) Simplify the radical $-8\sqrt{726}$.

a) $-88\sqrt{6}$ c) -90.75
b) $-986\sqrt{6}$ d) $-2{,}904$

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17) The number of school buses needed to transport students on a field trip is given by the function $f(x) = \frac{x+3}{30}$. What is the domain of the function?

a) The set of all real numbers
b) The set of all integers
c) The set of all non-negative integers
d) The set of all non-negative real numbers

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18) Look at the expression $2\sqrt{8} * \sqrt{20}$. Which of the following is equivalent to it?

a) $2\sqrt{28}$ c) $8\sqrt{10}$
b) 5 d)$32\sqrt{10}$

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19) Which sum is rational?

a) $\pi + 18$ c) $\sqrt{25} + 1.75$
b) $\sqrt{3} + 5.5$ d) $\pi + \sqrt{2}$

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20) What product is irrational?

a) $\sqrt{2} * \sqrt{50}$ c) $\sqrt{64} * \sqrt{4}$
b) $\sqrt{9} * \sqrt{49}$ d)$\sqrt{10} * \sqrt{8}$

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21) A rectangle has a length of 12 meters and a width of 400 centimeters. What is the perimeter, in centimeters, of the rectangle?

a) 824 cm c) 2000 cm
b) 1600 cm d) 3200 cm

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22) Jill swam 200 meters in 2 minutes and 42 seconds. If each lap is 50 meters long, which is MOST LIKELY to be her time, in seconds, per lap?

a) 32 seconds c) 48 seconds
b) 40 seconds d)60 seconds

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23) In which expression is the coefficient of linear term -1?

a) $3n^2 + 4n - 1$ c) $-n^2 + 5n + 4$
b) $-2n^2 - n + 5$ d) $4n^2 + n - 5$

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24) The expression s^2 is used to calculate the area of a square, where s is the side length of the square. What does the expression $(8x)^2$ represent?

a) The area of the square with side length of 8
b) The area of the square with side length of 16
c) The area of the square with side length of 4x
d) The area of the square with side length of 8x

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25) What is the product of 7x – 4 and 8x + 5 ?

a) $15x + 1$
b) $30x + 2$
c) $56x^2 + 3x - 20$
d) $56x^2 - 3x + 20$

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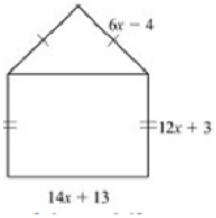
26) A model of a house is shown.



What is the perimeter, in units, of this model?

a) $32x + 12$ units
b) $46x + 25$ units
c) $50x + 11$ units
d) $64x + 24$ units

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27) Which expression has the same value as $(8x^2 + 2x - 6) + (5x^2 - 3x + 2)$?

a) $3x^2 - x - 4$
b) $3x^2 + 5x - 8$
c) $13x^2 - x - 4$
d) $13x^2 - 5x - 4$

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28) This equation is used to find h, the number of hours it will take Flo and Bryan to mow their lawn.

$\frac{h}{6} + \frac{h}{3} = 1$

How many hours will it take them to mow their lawn?

a) 6 hours
b) 3 hours
c) 2 hours
d) 1 hour

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29) For what values of x is the inequality $\frac{2}{3} + \frac{x}{3} > 1$ true?

a) $x < 1$
b) $x > 1$
c) $x < 5$
d) $x > 5$

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30) Which values is an irrational number?

a) $4 + \sqrt{7}$
b) $\sqrt{2}\sqrt{8}$
c) $\sqrt{3} - \sqrt{3}$
d) $\frac{\sqrt{3}\sqrt{12}}{5}$

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31) A ferry boat carries passengers back and forth between two communities on the Peachville River. It takes 30 minutes longer for the ferry to make the trip upstream than downstream. The ferry's average speed in still water is 15 miles per hour. The river's current is usually 5 miles per hour.

This equation can be used to determine how many miles apart the two communities are.

$$\frac{m}{15 - 5} = \frac{m}{15 + 5} + 0.5$$

What is m, the distance between the two communities?

a) 0.5 miles
b) 5 miles
c) 10 miles
d) 15 miles

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32) The measure of a squares side is 1.2 feet. What is the perimeter or the square in inches?

a) 14.4 inches
b) 19.2 inches
c) 42.2 inches
d) 57.6 inches

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33) A student can run 100 yards in 15 seconds. Convert this speed to miles per hour.

$$\frac{100 \text{ yards}}{14 \text{ sec}} \left| \frac{60 \text{ sec}}{1 \text{ min}} \right| \left[\quad \right] \left| \frac{3 \text{ feet}}{1 \text{ yard}} \right| \frac{1 \text{ mile}}{5280 \text{ feet}}$$

Which of the below choices would go in the missing spot to make the conversion to miles per hour?

a) $\frac{60\ min}{1\ hr}$
b) $\frac{1\ hr}{60\ min}$
c) $\frac{3600\ sec}{1\ hr}$
d) $\frac{1\ hr}{3600\ sec}$

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34) Which equation shows ax – w = 3 solved for w?

a) w = ax – 3
b) w = ax + 3
c) w = 3 – ax
d) w = 3 + ax

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April 30, 2019, Tuesday

Copy: Exponential Formulas -
Exponential equation, Geometric sequence formulas
& Compound interest formula

Milestone Review Unit 2

Name _____ Block ____

1. A number of apples were shared evenly among 4 students. Each student was also given 2 pears. Each student received a total of 6 pieces of fruit. Let a represent the total number of apples. Which equation can be used to find the total number of apples?

a) $a/4 - 2 = 6$ c) $4a + 2 = 6$
b) $a/4 + 2 = 6$ d) $4a - 2 = 6$

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2. A tour bus driver takes home 75% of the salary he earns and gives 60% of his tips to the tour guides on the bus. He took home $980 last week from salary and tips. Let s represent the driver's salary and t represent the total amount of tips the driver earns. Which equation can be used to find the possible amounts of his salary and tips the driver took home last week?

a) $0.75s + 0.4t = 980$ c) $0.75s + 0.04t = 980$
b) $0.75s - 0.4t = 980$ d) $0.75s - 0.04t = 980$

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3. Nicole gets paid $120 each week and $35 for every iPhone that she sells. Which of the following equations represents her weekly income?

a) $y = 120x + 35$ c) $y = -35x + 120$
b) $y = 120 + 35x$ d) $y = 35x - 120$

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4. Which BEST describes the system?

$-3x + y = 12$
$y = 3x - 2$

a) The system cannot be solved
b) One solution; lines intersect
c) Two solutions; lines are parallel
d) No solution; lines are parallel

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5. Solve the equation for y.

$2x - 4y = 4$

a) $y = 2x - 2$ c) $y = ½x + 2$
b) $y = ½x - 1$ d) $y = x - 2$

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6.

$4x + 5 - x = 20$	Original Equation
$4x - x + 5 = 20$	Commutative Prop of Addition
$3x + 5 = 20$	Substitution Property of Equality
$3x = 15$	Subtraction Property of Equality
$x = 5$	

Which of these properties correctly justifies the missing step in solving the equation above?

a) Distributive Property
b) Commutative Property of Addition
c) Commutative Property of Multiplication
d) Division Property of Equality

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7. Solve for x in the following equation:

$$y = mx + b$$

a) $x = y - m/b$ c) $x = y + b/m$
b) $x = y/m + b$ d) $x = \frac{y-b}{m}$

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8. Solve the inequality $4 - 5x < 14$.

a) $x < -2$ c) $x < -50$
b) $x > -2$ d) $x > -50$

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9. Which of the following would be the first step in solving this system using elimination?

$2x + y = 11$
$x + 3y = -18$

a) Multiply the second equation by 2
b) Multiply the second equation by -2
c) Multiply the second equation by 3
d) Multiply the second equation by -3

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10. What is the solution to the linear system?

$y = -x + 7$
$-2x + 2y = 6$

a) (-2, 9) c) (2, 5)
b) (2, 9) d) No solution

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11. Ed and Greg are working on their math HW. Ed says (2, 0) is a solution to $y < 4x - 8$. Greg disagrees. Who is correct and why?

Milestone Review Unit 2 Name _____ Block ____

a) Ed is correct because when he plugged (2, 0) into the expression it resulted in a true statement, 0=0.
b) Ed is correct because when he graphed the expression, (2, 0) was on the boundary line so it is a solution.
c) Greg is correct because when he plugged (2, 0) into the expression it resulted in a false statement $0 < 0$.
d) Greg is correct because when he graphed the expression, (2, 0) was not on the boundary line so it is not a solution.

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12. An arithmetic sequence has a common difference of 4 and the 3rd term is 10. What is the 6th term?

a) 14 c) 34
b) 22 d) 18

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13. A function is given a recursive form of $a_n = a_{n-1} - 3$ with a first term of 25. Which function represents the sequence?

a) $f(x) = x - 3$
b) $f(x) = 25x - 3$
c) $f(x) = -3x + 22$
d) $f(x) = -3x + 28$

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14. Which of the following does NOT represent an arithmetic sequence?

a) 3, 4, 5, 6, 7
b) -1, 1, 3, 5, 7
c) 2, 4, 8, 16
d) 10, 6, 2, -2

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15. Given the arithmetic sequence 2, 5, 8, 11, ... find a_n

a) $a_n = 3n + 1$ c) $a_n = 2n + 1$
b) $a_n = 3n - 1$ d) $a_n = -3n + 5$

16. Compare the following functions to determine which has a greater rate of change.

Function 1:

$y = 3x + 5$

Function 2:

x	-2	0	4
y	-4	-2	2

a) Function 1
b) Function 2
c) The functions have the same rate of change
d) The function do not have a rate of change

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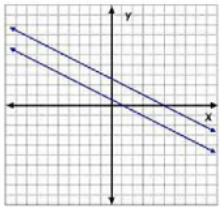
17. What is the solution to the system of equations?



a) (1, 0)
b) (0, 3)
c) Infinitely many solutions
d) No solution

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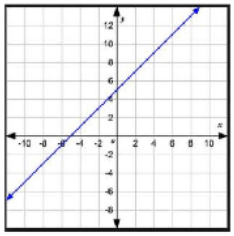
18. For the given linear function, what are the intercepts?



a) (0, 6) and (-6, 0)
b) (5, 0) and (-5, 0)
c) (0, 5) and (-5, 0)
d) (6, 0) and (-5, 0)

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19. What is the x-coordinate at the point of intersection for *f(x)* and *g(x)*?

$f(x) = 3x + 50$
$g(x) = 2x - 18$

a) -35 c) 3
b) -68 d) 32

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20. What is the function notation form of the sequence 4, 6, 8, 10, ... ?

a) f (x) = 2x c) f (x) = x + 2
b) f (x) = 2x + 2 d) f (x) = 4x + 2

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21. If a system of linear equations has infinitely many solutions, what do you know about the graphs of the
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Milestone Review Unit 2 Name _____ Block ____

equations?

a) The graphs coincide
b) The graphs intersect
c) The graphs are parallel
d) The graphs are perpendicular

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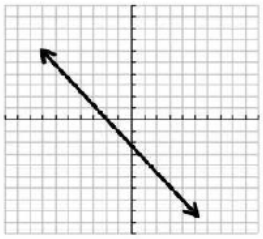
22. Determine the range of the function.

a) (-2,∞)
b) (-2,0)
c) (0,-2)
d) (-∞, ∞)



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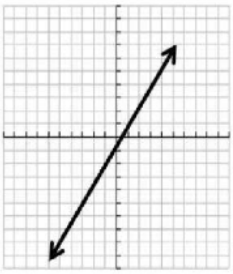
23. Describe the end behavior of the function.

a) As $x \to -\infty, y \to \infty$
As $x \to \infty, y \to \infty$

b) As $x \to -\infty, y \to -\infty$
As $x \to \infty, y \to -\infty$

c) As $x \to -\infty, y \to -\infty$
As $x \to \infty, y \to \infty$

d) As $x \to -\infty, y \to \infty$
As $x \to \infty, y \to -\infty$



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24. A shop sells one-pound bags of peanuts for $2 and three-pound bags of peanuts for $5. If 9 bags are purchased for a total cost of $36, how many 3 pound bags were purchased?

a) 3 c) 6
b) 9 d) 18

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25. Which ordered pair is a solution of

$$3y + 2 = 2x - 5?$$

a) (-5, 2) c) (7, 5)
b) (0, -5) d) (5, 1)

26. Look at the steps used when solving 3(x – 2) = 3 for x.

$3(x - 2) = 3$	Write the original equation.
$3x - 6 = 3$	Use the Distributive Property.
$3x - 6 + 6 = 3 + 6$	Step 1
$3x = 9$	Step 2
$\frac{3x}{3} = \frac{9}{3}$	Step 3
$x = 3$	Step 4

Which step is the result of combining like terms?

a) Step 1 c) Step 3
b) Step 2 d) Step 4

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27.Use the functions to answer this question:

$P(x) = x^2 - x - 6$
$Q(x) = x - 3$

What is P(x) – Q(x)?

a) $x^2 - 3$ c) $x^2 - 2x - 3$
b) $x^2 - 9$ d) $x^2 - 2x - 9$

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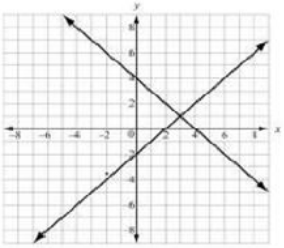
28. Two lines are graphed on this coordinate plane. What point appears to be a solution of the equations of both lines?

a) (0, -2)
b) (0, 4)
c) (2, 0)
d) (3, 1)



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29. Consider the system

$2x + y = -1$
$4x - y = -11$

What is the x-value of the solution?

a) x = 1 c) x = -2
b) x= -1 d) x = 3

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30. If f(12)= 4(12) – 20, which function gives f(x)?

a) f(x) = 4x
b) f(x) = 12x
c) f(x) = 4x – 20
d) f(x) = 12x – 20

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31. Which function represents the sequence?
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n	1	2	3	4	5	...
a_n	3	10	17	24	31	...

a) f(n)= n + 3
b) f(n) = 7n – 4
c) f(n) = 3n +7
d) f(n) = n + 7

32. Based on the tables, at what point do the lines $y = -x + 5$ and $y = 2x - 1$ intersect?

a) (1, 1)
b) (3, 5)
c) (2, 3)
d) (3, 2)

$y = -x + 5$	
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

33. Look at the tables of values for two linear functions, f(x) and g(x). What is the solution to f(x) = g(x)?

a) x = 3
b) x = 7
c) x = 5
d) x = 1

x	$f(x)$
–1	16
0	7
1	4
3	–2
5	–8
7	–14

x	$g(x)$
–1	–18
0	–14
1	–10
3	–2
5	6
7	14

34. The functions f(x) = x – 9 is shifted 2 units up and 3 units to the left. Select the new function.

a) G(x) = 2x – 6
b) G(x) = (x – 3) + 7
c) G(x) = 3x – 7
d) G(x) = (x+ 3) – 7

35. What is the solution to this system of equations?

x – 3y = 1
x – 2y = 6

a) (-4,-5)
b) (-2,-1)
c) (4,1)
d) (16,5)

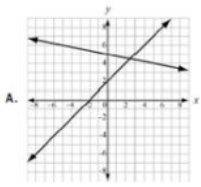
36. A manager is comparing the cost of buying baseball caps from two different companies.

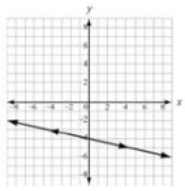
- ✓ Company x charges a $50 fee plus $7 per baseball cap.
- ✓ Company y charges a $30 fee plus $9 per baseball cap.

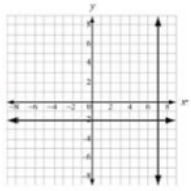
For what number of baseball caps will the cost be the same at both companies?

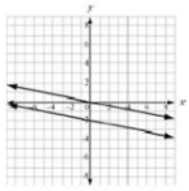
a) 10
b) 20
c) 40
d) 100

37. Which graph represents a system of linear equations that has multiple common coordinate pairs?

A. 

B. 

C. 

D. 

38. Look at the sequences in this table.

n	1	2	3	4	5	...
a_n	–1	1	3	5	7	...

Which function represents the sequence?

a) $a_n = a_{n-1} + 1$
b) $a_n = a_{n-1} + 2$
c) $a_n = 2a_{n-1} - 1$
d) $a_n = 2a_{n-1} - 3$

39. Which of these is an even function?

a) $f(x) = 5x^2 - x$
b) $f(x) = 3x^3 + x$
c) $f(x) = 6x^2 - 8$
d) $f(x) = 4x^3 + 2x^2$

40. Consider this pattern.

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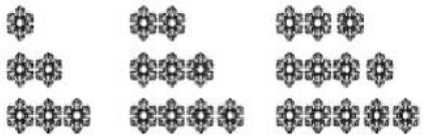


Which function represents the sequence that represents the pattern?

a) $a_n = a_{n-1} - 3$
b) $a_n = a_{n-1} + 3$
c) $a_n = 3a_{n-1} - 3$
d) $a_n = 3a_{n-1} + 3$

41. If a parent functions if f(x) = mx + b, what is the value of the parameter m for the line passing through the points (-2, 7) and (4, 3)?

a) -9 c) -3/2
b) -2 d) -2/3

42. Which function is modeled in this table?

a) f(x) = x + 7
b) f(x)= x + 9
c) f(x) = 2x + 5
d) f(x) = 3x + 5

x	f(x)
1	8
2	11
3	14
4	17

43. Which explicit formula describes the pattern in this table?

a) d = 3.14 x C
b) 3.14 x C = d
c) 31.4 x 10 = C
d) C = 3.14 x d

d	C
2	6.28
3	9.42
5	15.70
10	31.40

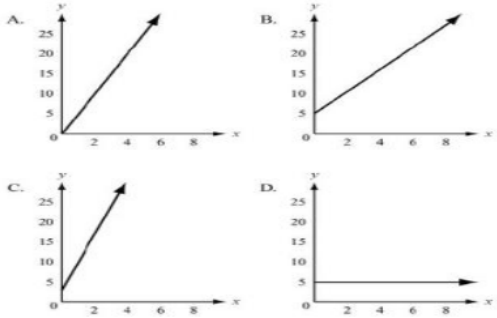
44. A wild horse runs at a rate of 8 miles an hour for 6 hours. Let y be the distance, in miles, the horse travels for a given amount of time, x, in hours. This situation can be modeled by a function. Which of these describes the domain of the function?

a) $0 \le x \le 6$
b) $0 \le y \le 6$
c) $0 \le x \le 48$
d) $0 \le y \le 48$

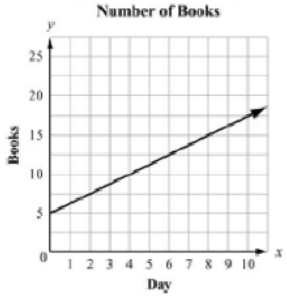
45. Kelly works 8 hours less than three times as much as March works for the week. Which expression represents the number of hours Kelly works in relation to March?

a) 3m – 8
b) 8 – 3m
c) 3(m – 8)
d) $\frac{m-8}{3}$

46. 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?



47. Juan and Patti decided to see who could read more books in a month. They began to keep track after Patti had already read 5 books that month. This graph shows the number of books Patti read for the next 10 days and the rate at which she read for the rest of the month.



If Juan does not read any books before day 4 and he starts reading at the same rate as Patti for the rest of the month, how many books will he have to read by day 12?

a) 5 c) 15
b) 10 d) 20

Milestone Review Unit 2 Name _____ Block ____

48. Which statement BEST describes the graph of f(x + 6)?
a) The graph of f(x) is shifted up 6 units
b) The graph of f(x) is shifted left 6 units
c) The graph of f(x) is shifted right 6 units
d) The graph of f(x) is shifted down 6 units

49. To rent a carpet cleaner at a hardware store, there is a set fee and an hourly rate. The rental cost, c, can be determined using this equation when the carpet cleaner is rented for h hours.

$$c = 25 + 3h$$

Which of these is the hourly rate?

a) 3
b) 3h
c) 25
d) 25h

50. Sandra sells necklaces at a school craft fair. She uses the equation:

$$P = 7.5n - (2.25n + 15)$$

to determine her total profit at the fair. Based on this equation, how much does she charge for each necklace?

a) $2.25
b) $7.50
c) $15.00
d) $17.25

51. The perimeter of a rectangle is $P = 2w + 2l$ where w is the width and l is the length. Rearrange the formula to find the width w of the rectangular prism.

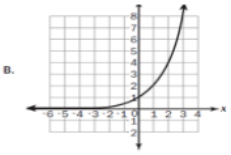
a) W = P – 2l
b) $W = \frac{P}{4-l}$
c) W = 2P – l
d) $W = \frac{P}{2} - l$

52. What is the domain of the function y = 3x + 5?

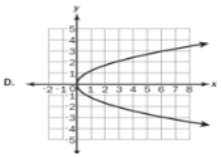
a) (-∞, ∞)
b) (0,5)
c) (0,3)
d) 3

53. Which one of these is not a function?

A) (5, 3), (6, 4), (7, 3), (8, 4)

B. 

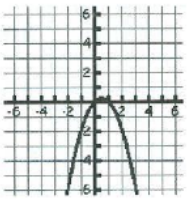
C. $y = 3x^2$

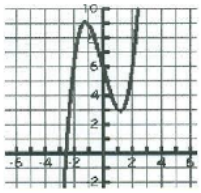
D. 

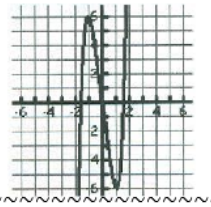
54. Determine whether the function $f(x) = -3x^4 - x^2$ is even, odd, or neither.

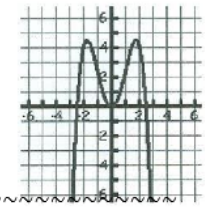
a) Even b) Odd c) Neither

55. Which of the following graphs is odd?

a) 

c) 

b) 

d) 

56. For the function $g(n) = 3n - 5$ find $g(-2)$.

a) -11 b) -1 c) 1 d) 11

May 1, 2019, Wednesday

Get a sheet of colored paper!

From the Algebra Formula Sheet, Copy:
Linear Formula - Slope formula, Linear equations, Arithmetic forms

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Copy: Exponential Formulas -
Exponential equation, Geometric sequence formulas & Compound interest formula

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Copy: Quadratic Formulas -
Quadratic Equations, Quadratic Formula & Average rate of Change

Unit 3

1) Which expression is equivalent to $121x^2 - 64y^2$?

a) (11x – 16y)(11x + 16y)
b) (11x – 16y)(11x – 16y)
c) (11x + 8y)(11x + 8y)
d) (11x + 8y)(11x – 8y)

2) What is the common factor for the expression $24x^2 + 16x + 144$?

a) 16
b) 8
c) $3x^2 + 2x + 18$
d) $8(x - 2)(3x^2 + 9)$

3) Which of these shows the complete factorization of $6x^2y^2 - 9xy - 42$?

a) $3(2xy^2 - 7)(xy^2 + 2)$
b) $(3xy + 6)(2xy - 7)$
c) $3(2xy - 7)(xy + 2)$
d) $(3xy^2 + 6)(2xy^2 - 7)$

4) What are the zeros of the function represented by the quadratic expression $2x^2 + x - 3$?

a) x = -3/2 and x = 1
b) x = -2/3 and x = 1
c) x = -1 and x = 2/3
d) x = -1 and x = -3/2

5) 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)

6) Which of these is the result of completing the square for the expression $x^2 + 8x - 30$?

a) $(x + 4)^2 - 30$
b) $(x + 4)^2 - 46$
c) $(x + 8)^2 - 30$
d) $(x + 8)^2 - 94$

7) Which of the following is a binomial factor of the polynomial $x^2 + 10x - 24$?

a) (x + 4)
b) (x – 12)
c) (x – 4)
d) (x + 12)

8) Factor the trinomial $x^2 + 6x - 40$.

a) (x + 8)(x – 5)
b) (x + 10)(x – 4)
c) (x – 10)(x + 4)
d) (x + 12)(x – 6)

9) Factor $2x^2 + 18x + 40$.

a) 2(x + 5)(x – 4)
b) 2(x – 5)(x+4)
c) 2(x + 4)(x + 5)
d) 2(x – 4)(x – 5)

10) Consider the equation $(2x + 1)^2 - 5 = 3x^2 + 1$, if you were to use the quadratic formula, what could be the values of a, b, and c?

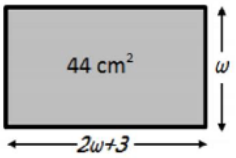
a) a = 4, b = -3, c = 5
b) a = 2, b = -4, c = 5
c) a = 1, b = 4, c = -5
d) a = 5, b = 2, c = -4

11) What is the y-intercept of $y = 5x^2 + 18x + 3$?

a) (0,3)
b) (3,0)
c) (0,-3)
d) (-3,0)

12) The length of the rectangle is 3 cm more than twice the width. If the area of the rectangle is 44 cm², what is the width of the rectangle?

a) 2 cm
b) 11 cm
C) 4 cm
d) 22 cm



Unit 3

13) Solve by factoring and use the zero-product property:

$$x^2 + 6x - 40 = 0.$$

a) x = 10, x = -4
b) x = -8, x = 5
c) x = -10, x = 4
d) x = -5, x = 8

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

14) Find the solutions to the quadratic equation:

$$2x^2 - 7x - 4 = 0$$

a) x = ½, -2
b) x = ¼, -4
c) x = - ¼, 2
d) x = -½, 4

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

15) Solve the quadratic equation $x^2 - 6x - 3 = 0$ by completing the square.

a) $x = 3 \pm 2\sqrt{3}$
b) $x = -3 \pm 2\sqrt{3}$
c) $x = 3 \pm \sqrt{6}$
d) $x = -3 \pm 2\sqrt{6}$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

16) Solve the quadratic equation $2x^2 - 5x = 1$.

a) $x = \frac{5 \pm \sqrt{33}}{4}$
b) $x = \frac{-5 \pm \sqrt{33}}{2}$
c) $x = \frac{-5 \pm \sqrt{17}}{4}$
d) $x = \frac{5 \pm \sqrt{17}}{2}$

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17) A student named Scott could determine the solution of a quadratic equation was:

$$x = \frac{5 \pm \sqrt{7}}{3}$$

Which of the following shows the correct approximation of his answer?

a) $x \approx \pm 4.410$
b) $x \approx 4.118$ or $x \approx 5.882$
c) $x \approx 0.785$ or $x \approx 2.549$
d) $x \approx -0.979$ or $x \approx 4.312$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

18) If the zeros of a quadratic function are x = -2 and x = 4, what is the equation of the axis of symmetry?

a) x = 0
b) x = 1
c) x = 2
d) x= 3

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

19) What are the solutions to the equation $x^2 - 5x = 14$?

a) x = -7 and x = -2
b) x = -14 and x = -1
c) x = -2 and x =7
d) x = -1 and x = 14

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

20) The expression $-x^2 + 70x - 600$ represents a company's profit for selling x items. For which number(s) of items sold is the company's profit equal to $0?

a) 0 items
b) 35 items
c) 10 items and 60 items
d) 20 items and 30 items

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

21) The formula for the area of a circle is $A = \pi r^2$. Which equation shows the formula in terms of r?

a) $r = \frac{2A}{\pi}$
b) $r = \frac{\sqrt{A}}{\pi}$
c) $r = \sqrt{\frac{A}{\pi}}$
d) $r = \frac{A}{2\pi}$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

22) What are the solutions to the equation $2x^2 - 2x - 12 = 0$?

a) x = -4 and x = 3
b) x = -3 and x = 4
c) x = -2 and x = 3
d) x = -6 and x = 2

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

23) What is the range of the graph of $y = -x^2 - 2x - 5$?

a. $(-\infty, 1]$
b. $[-1, \infty)$
c. $(-\infty, -4]$
d. $[-4, \infty)$

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Unit 3

24) What are the solutions to the equation $6x^2 - x - 40 = 0$?

a) x = -8/3 and x = -5/2
b) x = -8/3 and x = 5/2
c) x = 5/2 and x = 8/3
d) x = -5/2 and x = 8/3

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

25) Which parabola below has a maximum value?

a) $y = 4x^2 + 24x + 23$
b) $y = 0.1x^2 - 3x$
c) $y = 2x - 3x^2$
d) $y = x^2 + 2x + 20$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

26) A garden measuring 8 feet by 12 feet will have a walkway around it. The walkway has a uniform width, and the area covered by the garden and the walkway is 192 square feet. What is the width of the walkway?

a) 2 feet
b) 3.5 feet
c) 4 feet
d) 6 feet

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

27) An object is thrown in the air with an initial velocity of 5 m/s from a height of 9 m. The equation $h(t) = -4.9t^2 + 5t + 9$ models the height of the object in meters after t seconds. About how many seconds does it take for the object to hit the ground? Round your answer to the nearest tenth of a second.

a) 0.940 second
b) 1.50 seconds
c) 2.00 seconds
d) 9.00 seconds

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

28) A baseball player hits a baseball that is modeled by the function $s(t) = -16t^2 + 80t + 4$ represents the height in feet of an object, from the ground after the time, t, in seconds.

About how long will it take the baseball to hit the ground?

a) 2 seconds
b) 3 seconds
c) 4 seconds
d) 5 seconds

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

29) A café's annual income depends on x, the number of customers. The function $l(x) = 4x^2 - 20x$ describes the café's total annual income. The function $C(x) = 2x^2 + 5$ describes the total amount the café spends in a year. The café's annual profit, P(x) is the difference between the annual income and the amount spent in a year. Which function describes P(x)?

a) $P(x) = 2x^2 - 20x - 5$
b) $P(x) = 4x^3 - 20x^2$
c) $P(x) = 6x^2 - 20x + 5$
d) $P(x) = 8x^4 - 40x^3 - 20x^2 - 100x$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

30) What is the end behavior of the graph of $f(x) = -0.25x^2 - 2x + 1$?

a) As x→ -∞, f(x)→ ∞, As x→ ∞, f(x) → ∞
b) As x→ -∞, f(x)→ -∞, As x→ ∞, f(x) → -∞
c) As x→ -∞, f(x)→ -∞, As x→ ∞, f(x) → ∞
d) As x→ -∞, f(x)→ ∞, As x→ -∞, f(x) → -∞

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

31) Which statement BEST describes how the graph of $g(x) = -3x^2$ compares to the graph of $f(x) = x^2$?

a) The graph of g(x) is a vertical stretch of f(x) by a factor of 3
b) The graph of g(x) is a reflection of f(x) across the x-axis
c) The graph of g(x) is a vertical shrink of f(x) by a factor of 1/3 and a reflection across the x-axis.
d) The graph of g(x) is a vertical stretch of f(x) by a factor of 3 and a reflection across the x-axis.

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32) A flying disk is thrown into the air from a height of 25 feet at time t = 0. The function that models this situation is $h(t) = -16t^2 + 75t + 25$, where t is measured in seconds and h is the height in feet. What values of t best describe the times when the disk is flying in the air?

a) $0 < t < 5$
b) $0 < t < 25$
c) All real numbers
d) All positive integers

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Unit 3

33) Use this table to answer the question

x	-2	-1	0	1	2
f(x)	15	9	5	3	3

What is the average rate of change of f(x) over the interval $-2 \leq f(x) \leq 0$?

a) -10
b) -5
c) 5
d) 10

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

34) Which function has a range of f(x)$\leq \frac{3}{4}$?

a) $f(x) = \frac{3}{4}x + 5$
b) $f(x) = -x^2 + \frac{3}{4}$
c) $f(x) = x^2 - \frac{3}{4}$
d) $f(x) = \frac{3}{4} - 5x$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

35) Convert $y = x^2 - 12x + 40$ to vertex form.

a) $y = (x - 6)^2 + 40$
b) $y = (x + 6)^2 + 36$
c) $y = (x - 6)^2 + 4$
d) $y = (x - 12)^2 - 36$

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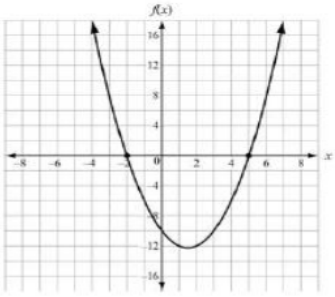
36) Use the graph to answer the question



Which function is shown in the graph?

a) $f(x) = x^2 - 3x - 10$
b) $f(x) = x^2 + 3x - 10$
c) $f(x) = x^2 + x - 12$
d) $f(x) = x^2 - 5x - 8$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

37) The function $f(t) = -16t^2 + 64t + 5$ models the height of the ball that was hit into the air, where t is measured in seconds and h is the height in feet. This table represents the height, g(t), of a second ball that was thrown into the air. Which statement BEST compares the length of time each ball is in the air?

Time t (in sec)	0	1	2	3
Height g(t) (in ft)	4	36	36	4

a) The ball is represented by f(t) is in the air for about 5 seconds and the ball is represented by g(t) is in the air for about 3 seconds.
b) The ball represented by f(t) is in the air for about 3 seconds and the ball represented by g(t) is in the air for about 5 seconds
c) The ball represented by f(t) is in the air for about 3 seconds and the ball represented by g(t) is in the air for about 4 seconds
d) The ball represented by f(t) is in the air for about 4 seconds and the ball represented by g(t) is in the air for about 3 seconds

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38) If the original parabola is defined by $y = x^2$, how would it change $y = 2(x - 3)^2 + 1$ were graphed instead?

a) The parabola would be vertically stretched by a factor of 2, translated right 3, up 1
b) The parabola would be vertically compressed by a factor of ½, translated left 3, down 1
c) The parabola would be vertically compressed by a factor of ½, translated right 3, down 1
d) The parabola would be vertically stretched by a factor of 2, translated left 3, up 1

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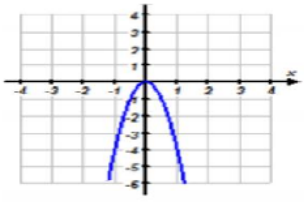
39) Which is the equation of the following parabola in vertex form?



a) $y = 4x^2$
b) $y = -4x^2$
c) $y = \frac{1}{4}x^2$
d) $y = -\frac{1}{4}x^2$

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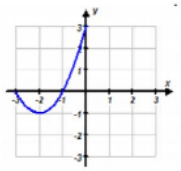
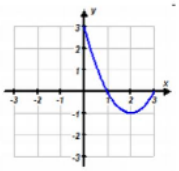
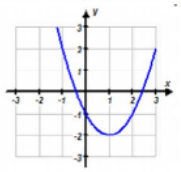
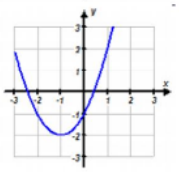
Unit 3

40) Which is the graph $y = (x - 1)^2 - 2$?

a.


c.


b.


d.


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41) If you place one of the foundation points of the St. Louis arch at the origin, you could roughly describe it as a parabola with the equation $y = -0.00635(x - 315)^2 + 630$. How tall is the arch?

a) 200 ft. tall
b) 315 ft. tall
c) 630 ft. tall
d) 945 ft. tall

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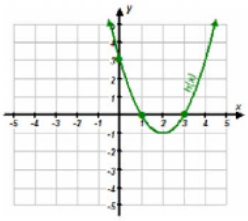
42) Consider the graph of the function shown below. Which of the following functions represent the quadratic function?



a) $f(x) = (x - 1)(x - 3)$
b) $f(x) = (x - 1)(x - 2)$
c) $f(x) = (x + 1)(x + 3)$
d) $f(x) = (x + 1)(x + 2)$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

43) A baseball is hit by a batter. The function $h(t) = -16t^2 + 48t + 2$ describes the height in feet of the baseball as a function of time t in seconds. What is the maximum height of the ball?

a) 16 ft.
b) 38 ft.
c) 48 ft.
d) 50 ft.

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

44) The table defines a quadratic function.

x	-1	0	1	3
y	5	1	-1	1

What is the average rate of change between $x = -1$ and $x = 1$?

a) Undefined
b) -1/3
c) -3
d) -4

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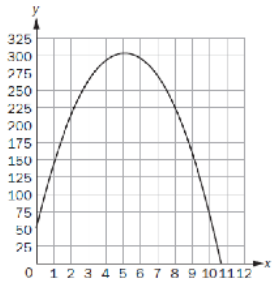
45) The graph shows the height, y, in meters of a rocket above sea level in terms of the time, t, in seconds since it was launched. The rocket landed at sea level.



What does the x-intercept represent in this situation?

a) The height from which the rocket was launched
b) The time it took the rocket to return to the ground
c) The total distance the rocket flew while it was in flight
d) The time it took the rocket to reach the highest point in its flight

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46) How would you shift the parent function $y = x^2$ to graph the function $y = (x - 4)^2 + 5$?

a) The function $y = x^2$ would be shifted 4 units to the right and 5 units down.
b) The function $y = x^2$ would be shifted 4 units to the right and 5 units up.
c) The function $y = x^2$ would be shifted 5 units to the right and 4 units down.
d) The function $y = x^2$ would be shifted 5 units to the left and 4 units up

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Unit 3

47) The axis of symmetry of a parabola does not always contain which point?

a) Maximum or Minimum
b) Vertex
c) Midpoint of the x-intercepts
d) y-intercept

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

48) The parent function $f(x) = x^2$ is reflected across the x-axis, vertically stretched by a factor of 4 and translated right 3 units to create g (x). Use the description to write the quadratic function in vertex form.

a) $g(x) = -4(x + 3)^2$
b) $g(x) = 4(x + 3)^2$
c) $g(x) = 4(x - 3)^2$
d) $g(x) = -4(x - 3)^2$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

49) Which function has its vertex below the x-axis?

a) $f(x) = x^2 - 8$
b) $f(x) = (x - 7)^2$
c) $f(x) = -2x^2$
d) $f(x) = -(x + 3)^2$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

50) Does the function $f(x) = x^2 - 10x + 18$ have a maximum or a minimum? What are its coordinates?

a) Maximum; (5, -7)
b) Minimum; (5, -7)
c) Maximum; (-5, -7)
d) Minimum; (-5, -7)

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

51) What are the factors of the equation

$$x^2 - 6x + 5 = 0$$

a) $(x + 1)(x + 5)$
b) $(x + 2)(x + 3)$
c) $(x - 1)(x - 5)$
d) $(x - 2)(x - 3)$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

52) Which of the following expressions below shows the complete factorization of the expression

$$2x^3 + 4x^2 - 6x$$

a) $(2x^2 - 2x)(x + 3)$
b) $2x(x^2 + 2x - 3)$
c) $2x(x - 1)(x + 3)$
d) $2(x^3 + 2x^2 - 3x)$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

53) What is the value of the function $f(x) = x^2 - 5x + 2$ evaluated at $x = 2$?

a) 16
b) 6
c) 2
d) -4

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May 2, 2019, Thursday

Copy: Statistics Formula -
Mean, Interquartile range, & Mean absolute deviation

Algebra 1 EOC study Guide **Unit 4** Name _____

1. A culture of bacteria doubles every hour. If there are 500 bacteria at the beginning, how many bacteria will there be after 9 hours?

a) A. 256,000 c) 9,000
b) 4,500 d) 40,500

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

2. Given the function $f(x) = 630(0.64)^x$, determine if this function models exponential growth or decay and identify the growth or decay rate.

a) Decay, 64% c) Growth, 64%
b) Decay, 36% d) Growth, 36%

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

3. The value (in millions of dollars) of a large company is modeled by $f(x) = 241\ (1.04)^x$. What is the projected annual *percent of growth* and what is the initial value?

a) 10.4%; $241 million
b) 2.41%; $104 million
c) 241%; $4 million
d) 4%; $241 million

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

4. The recursive formula for a geometric sequence is given as:

$a_n = (0.6)\ a_{n-1}$
$a_1 = 100$

What is the explicit formula for the same sequence?

a) $a_n = 100\ (0.6)^{n-1}$ c) $a_n = 0.6\ (100)^{n-1}$
b) $a_n = 100\ (0.6)^n$ d) $a_n = 0.6\ (100)^n$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

5. Write an explicit rule for the following sequence 32, 16, 8, 4, ... *(Hint: $a_n = a_1(r)^{n-1}$)*

a) $a_n = 32(0.5)^{n-1}$ c) $a_n = 32(-2)^{n-1}$
b) $a_n = 32(2)^{n-1}$ d) $a_n = 32(0.25)^{n-1}$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

6. What is the asymptote of the function: $f(x) = (1/3)^x - 2$?

a) y = 2 c) y = -2
b) x = 0 d) x = 1/3

7. Which of the following equations represents a reflection over the x-axis, horizontal shift left 4 units, vertical shift up 8 units, and a shrink from the parent function $f(x) = 2^x$?

a) $f(x) = 2^{x-4} - 8$
b) $f(x) = -3/4\ (2)^{x-4} + 8$
c) $f(x) = -3/4\ (2)^{x+4} + 8$
d) $f(x) = -5(2)^{x+4} + 8$

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

8.

Function 1:

An exponential decay function that has been reflected over the x-axis and shifted up 2 units.

Function 2:

x	$f(x)$
-2	9
-1	3
0	1
1	0.3

Which function has no x- intercepts and why?

a) Function 1, it has been shifted up 2 units, and therefore, will not cross the x-axis.
b) Function 1, it has been reflected across the x-axis, and therefore, will not cross the x-axis.
c) Function 2 because the x-axis is a horizontal asymptote.
d) Function 2 because the y-axis is a horizontal asymptote.

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

9. Given $f(x) = 3^x$ and $g(x) = -2(3)^x + 4$, describe the transformations performed on $f(x)$ to get $g(x)$.

a) Vertical Shrink by a factor of -2, Vertical Shift up 4
b) Reflection over the x-axis, Vertical Stretch by a factor of 2, Vertical Shift up 4
c) Reflection over the x-axis, Vertical Stretch by a factor of 2, Vertical Shift down 4
d) Reflection over the x-axis, Vertical Shrink by a factor of ½, Vertical Shift up 4

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

10. What is the y-intercept of the function whose equation is $y = 2(3)^x$?

a) 1 c) 6
b) 3 d) 2

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
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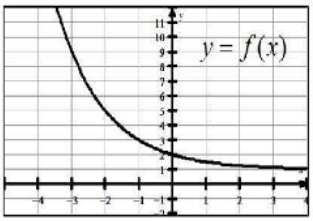
Unit 4 Milestone Review

11. What is the average rate of change of *f(x)* on the interval [-3, -1]?

a) -2
b) -
c) -
d) -1.5



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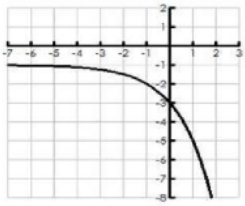
12. State the range for the function.

a) (-1, ∞)
b) (-∞, -1)
c) (-∞, 1)
d) (-∞, ∞)



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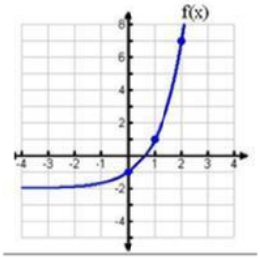
13. Determine the function represented by the graph.

a) $f(x) = (½)^x - 2$
b) $f(x) = (3)^x - 2$
c) $f(x) = (2)^x - 1$
d) $f(x) = (3)^x - 1$



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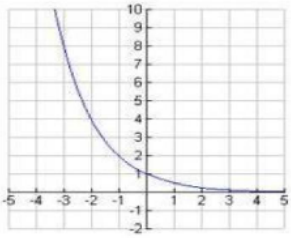
14. Which statement correctly describes part of the end behavior of the function graphed?

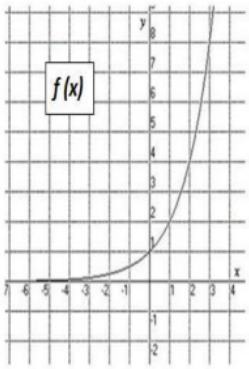


a) As $x \to \infty, y \to \infty$
b) As $x \to -\infty, y \to 0$
c) As $x \to \infty, y \to 0$
d) As $x \to -\infty, y \to -\infty$

~~~~~~

15. Determine which function represented above has a greater average rate of change on the interval from 0 to 2, inclusive.

(x)	g (x)
-2	-3
-1	-1
0	1
1	3
2	5



a) f(x)
b) g(x)
c) They have the same rate of change.
d) It is impossible to compare their rates of change.

~~~~~~

16. A certain population of bacteria has an average growth rate of 2%. The formula for the growth of the bacteria's population is $A = P_o * 1.02^t$ where P_o is the original population and t is the time in hours.

If you begin with 200 bacteria, about how many bacteria will there be after 100 hours?

a) 7
b) 272
c) 1449
d) 1478

~~~~~~

17.Which function represents this sequence?

n	1	2	3	4	5	. . .
a_n	6	18	54	162	486	. . .

a) $f(n) = 3^{n-1}$
b) $f(n) = 6^{n-1}$
c) $f(n) = 3(6)^{n-1}$
d) $f(n) = 6(3)^{n-1}$

~~~~~~
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Unit 4 Milestone Review

18. The points (0, 1), (1, 5), (2, 25) and (3, 125) are on the graph of a function. Which equation represents that function?

a) $f(x) = 2^x$ c) $f(x) = 4^x$
b) $f(x) = 3^x$ d) $f(x) = 5^x$

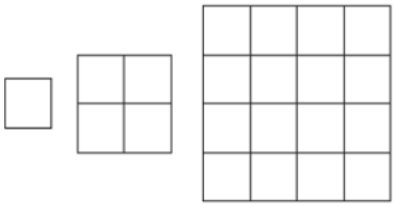
19. Which functions show the function $f(x) = 3^x$ being translated 5 units down?

a) $f(x) = 3^x - 5$ c) $f(x) = 3^{x-5}$
b) $f(x) = 3^{x+5}$ d) $f(x) = 3^x + 5$

20. Which function shows the function $f(x) = 3^x$ being translated 5 units to the left?

a) $f(x) = 3^x - 5$ c) $f(x) = 3^{x-5}$
b) $f(x) = 3^{x+5}$ d) $f(x) = 3^x + 5$

21. Consider the pattern.



Which function represents the sequence that represents the pattern?

a) $a_n = 4^{n-1}$ c) $a_n = a_n * 4^{n-1}$
b) $a_n = 4^{a_n-1}$ d) $a_n = (a_n)^4$

22. Which function is modeled in this table?

x	f(x)
1	1000
2	800
3	640
4	512

a) f(x) = 1000(0.80)
b) f(x) = 1000(0.20)
c) f(x) = $1000(0.80)^{x-1}$
d) f(x) = $1000(0.20)^{x-1}$

23. Which explicit formula describes the patter in this table?

d	C
0	1
1	6
2	36
3	216

a) C = 6d c) $C = 6^d$
b) C = d + 6 d) $C = d^6$

24. If $f(12) = 100(0.50)^{12}$, which expression gives f(x)?

a) $f(x) = 12^x$
b) $f(x) = 100^x$
c) $f(x) = 100(x)^{12}$
d) $f(x) = 100(0.50)^x$

25. Which function is modeled in this table?

x	f(x)
1	8
2	40
3	200
4	1,000

a) f(x)=x + 7
b) f(x)= 5x + 8
c) $f(x) = 8^x$
d) $f(x) = \frac{8}{5}(5)^x$

26. Which table represents an exponential function?

A.

x	0	1	2	3	4
y	5	6	7	8	9

B.

x	0	1	2	3	4
y	0	22	44	66	88

C.

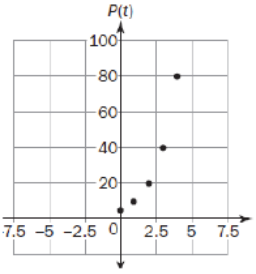
x	0	1	2	3	4
y	5	13	21	29	37

D.

x	0	1	2	3	4
y	0	3	9	27	81

Unit 4 Milestone Review

27. A population of squirrels doubles every year. initially, there were 5 squirrels. A biologist studying squirrels created a function to meld their population growth: $P(t) = 5(2^t)$, where t is the time in years. The graph of the function is shown.



What is the range of the function?

a) Any real number
b) Any whole number greater than 0
c) Any whole number greater than 5
d) Any whole number greater than or equal to 5

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

28. A sample of 1000 bacteria becomes infected with a virus. Each day, one fourth of the bacteria sample dies due to the virus. A biologist studying the bacteria models the population of the bacteria with the function $P(t) = 1000(0.75)^t$, where t is the time in days.

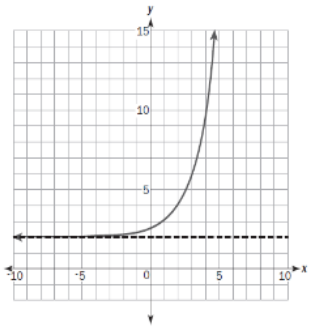
What is the range of this function in this context?

a) Any real number such that $t \geq 0$.
b) Any whole number such that $t \geq 0$.
c) Any real number such that $0 \leq P(t) \leq 1000$.
d) Any whole number such that $0 \leq P(t) \leq 1000$.

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

29. Look at the graph. Which equation represents this graph?

a) $y = 2^{x+1} - 2$
b) $y = 2^{x-1} + 2$
c) $y = 2^{x+2} - 1$
d) $y = 2^{x-2} + 1$



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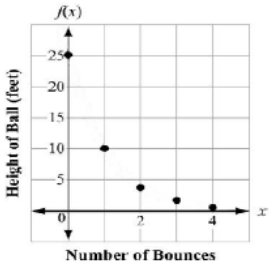
30. The function graphed on this coordinate gird shows f(x), the height of a dropped ball in feet after its xth bounce.



On which bounce was the height of the ball 10 feet?

a) Bounce 1
b) Bounce 2
c) Bounce 3
d) Bounce 4

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

31. Which statement is true about graphs of exponential functions?

a) The graphs of exponential functions never exceed the graphs of linear and quadratic functions.
b) The graphs of exponential functions always exceed the graphs of linear and quadratic functions.
c) The graphs of exponential functions eventually exceed the graphs of linear and quadratic functions.
d) The graphs of exponential functions eventually exceed the graphs of linear but not quadratic functions.

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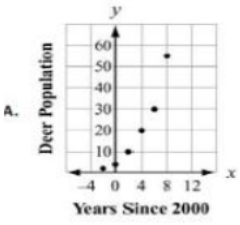
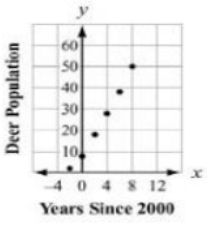
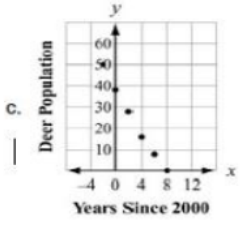
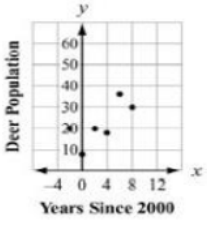
32. Which scatter plot BEST represents a model of exponential growth?

A.


B.


C.


D.

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Unit 4 Milestone Review

33. A table of values is shown for f(x) and g(x).

x	f(x)
0	0
1	1
2	4
3	9
4	16
5	25

x	g(x)
0	–2
1	–1
2	1
3	5
4	13
5	29

Which statement compares the graphs of f(x) and g(x) over the interval [0, 5]?

a) The graph of f(x) always exceeds the graph of g(x) over the interval of [0, 5].
b) The graph of g(x) always exceeds the graph of f(x) over the interval [0, 5].
c) The graph of g(x) exceeds the graph of f(x) over the interval [0, 4], the graphs intersect at a point between 4 and 5, and then the graph of f(x) exceeds the graph of g(x).
d) The graph of f(x) exceeds the graph of g(X) over the interval [0, 4], the graphs intersect at a point between 4 and 5, and then the graph of g(x) exceeds the graph of f(x).

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

34. Which statement BEST describes the comparison of the function values for f(x) and g(x)?

x	f(x)	g(x)
0	0	–10
1	2	–9
2	4	–6
3	6	–1
4	8	6

a) The values of f(x) will always exceed the values of g(x).
b) The values of g(x) will always exceed the values of f(x).
c) The values of f(x) exceed the values of g(x) over the interval [0,5].
d) The values of g(x) begin to exceed the values of f(x) within the interval [4,5].

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

35. Does the data in the table represent a linear, quadratic, exponential or other type of function?

a) Linear
b) Quadratic
c) Exponential
d) Other

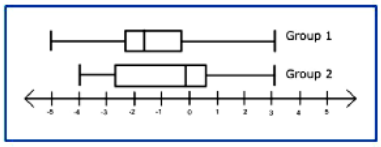
x	f(x)
0	1
2	4
4	16
6	64
8	256

May 3, 2019, Friday

Make sure the "title" of your work is at the top, your name is on your paper, your work is neat and accurate – this is a quiz grade!

Unit 6 Milestone Review Name _____ Block ____

1. **Which group has the GREATEST spread in the upper 25% of their data?**



a) Group 1
b) Group 2
c) Group 1 and 2 have the same spread
d) The spreads cannot be determined

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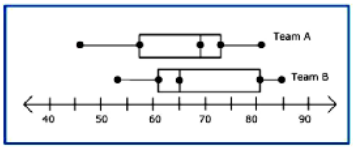
2. **The number of points scored per basketball game for 2 teams has been recorded in the form of a box plot.**



Which team has the GREATEST median for points scored per basketball game?

a) Team A
b) Team B
c) Same median
d) Medians cannot be determined

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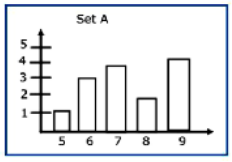
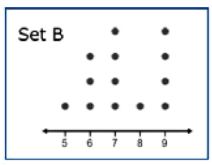
3. **Which set of data has the GREATEST mean?**





a) Set A
b) Set B
c) Set A and B have the same mean, 7
d) Set A and B have the same mean, 9

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

4. **Which correlation coefficient would BEST describe the relationship between two variables that have a WEAK, NEGATIVE correlation?**

a) -0.25 c) -0.84
b) -0.63 d) -0.99

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

5. **The data set above shows students' scores on a test. Describe the shape of the data distribution if the student who scored 100 is NOT included in the data set.**

70	72	73	74	74
75	75	75	75	76
77	77	78	80	100

a) Skewed Right
b) Symmetric
c) Skewed left
d) It is impossible to determine

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

6. **Ms. Warren collects information about her students. She records students' favorite movie types in the table and separates the responses by age. What is the marginal relative frequency of 15-year-olds?**

Age	Favorite movie genre			
	Comedy	Romantic comedy	Action	Thriller
15 years old	8	14	22	9
16 years old	13	16	18	5

a) 0.50
b) 0.30
c) 0.38
d) 0.26

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

7. **Gerry collected data and made a table of relative frequencies on the number of students who participate in chorus and band.**

		Chorus		
		Yes	No	Total
Band	Yes	0.38	0.29	0.67
	No	0.09	0.24	0.33
	Total	0.47	0.53	1.0

Given that a student is not in chorus, what is the probability that he or she is in band?

a) 0.29
b) 0.43
c) 0.38
d) 0.55

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8. Which linear function is a good fit for the data in the given table?

a) $y = 5x + 2$
b) $y = 5x - 2$
c) $y = -5x + 2$
d) $y = -5x - 2$

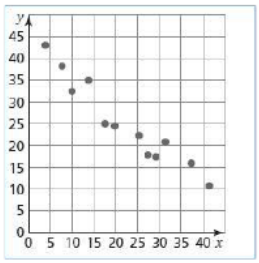
x	y
1	6
2	12
3	15
4	24
5	28
6	32
7	35
8	40
9	46
10	52

9. What does a correlation coefficient of 0.17 suggest about two variables?

a) The variables are positively correlated, and x causes y.
b) The variables are positively correlated, and x does not cause y.
c) The variables are weakly correlated, and x causes y.
d) The variables are weakly correlated, and x does not cause y.

10. Which equation is the BEST fit for the data?

a. $y = -x + 47$
b. $y = -x + 39$
c. $y = x + 39$
d. $y = x + 47$



11. In this context, what does the slope of the linear function that models the data represent?

Value of Cars from Time of Sale

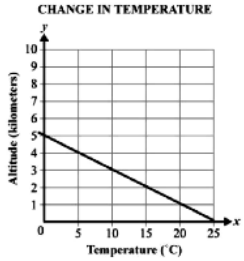
Age of Car (In Months)	Value of Car
0	$34,000
48	$10,000
24	$12,500
12	$20,250
18	$20,000
20	$14,150

a) The original value of the car.
b) The gain in value of the car.
c) The loss in value of the car.
d) The value of the car per month.

12. Which of the following relationships below show no causation?

a) The age of an adult and the adult's pant size.
b) A decrease in rainfall and an increase in water restrictions.
c) The number of times suspended, and the amount of school days missed.
d) An increase in snow fall and the number of inches of snow reported.

13. The graph shows the relationship between air temperature and altitude.



What is the meaning of the *x*-intercept in this context?
a) The air temperate at sea level
b) The altitude at which the air temperate is 0°C
c) The rate of change of temperature with altitude
d) The altitude at which air temperate is 5°C

14. This table shows the average low temps in Fahrenheit, recorded in Macon GA and Charlotte, NC, over a six-day period.

Day	1	2	3	4	5	6
Temperature in Macon, GA (°F)	71	72	66	69	71	73
Temperature in Charlotte, NC (°F)	69	64	68	74	71	75

Which conclusion can be drawn from the data?

a) The interquartile range of the temps is the same for both cities
b) The lower quartile for the temps in Macon is less than the lower quartile for the temps in charlotte
c) The mean and median temps in Macon were higher than the mean and median temps in charlotte
d) The upper quartile for the temps in charlotte was less than the upper quartile for the temps in Macon

15. A school was having a coat drive for a local shelter. A teacher determined the median number of coats collected per class and the interquartile range of the number of coats collected per class for the freshmen and sophomores.

- *The freshmen collected a median number of coats per class of 10 and the interquartile range was 6*
- *The sophomores collected a median number of coats per class of 10 and the interquartile range was 4*

Which range of numbers includes the third quartile of coats collected for both the freshmen and sophomores?

a) 4 to 14
b) 6 to 14
c) 10 to 16
d) 12 to 15

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16. A reading teacher recorded the number of pages read in an hour by each of her students. The numbers are listed below:

44, 49, 39, 43, 50, 44, 45, 49, 51

For this data, which summary stat is NOT correct?

a) The min is 39
b) The lower quartile is 44
c) The median is 45
d) The max is 51

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17. Which of these statements is an example of causation?

a) When the weather becomes winter, more meat is purchase at the supermarket
b) More people go to the mall when students go back to school
c) The greater the number of new television shows, the fewer the number of moviegoers
d) After operating costs are paid at a toy shop, as more toys are sold, more money is made

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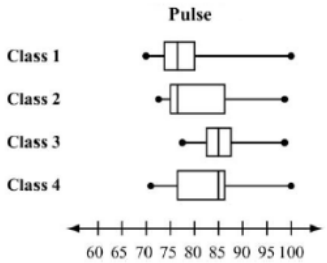
18. A science teacher recorded the pulse of each of the students in her classes after the students had climbed a set of stairs. She displayed the results, by class, using the box plots provided.



Which class generally had the higher pulse after climbing the stairs?

a) Class 1
b) Class 2
c) Class 3
d) Class 4

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19. Peter went bowling, Monday to Friday, two weeks in a row. He only bowled one game each time he went. He kept track of his scores below.

Week 1: 70, 70, 70, 73, 75
Week 2: 72, 64, 73, 73, 75

What is the BEST explanation for why Peter's Week 2 mean scores was lower than his Week 1 mean score?

a) Peter received the same score three times in week 1
b) Peter had one very low score in week 2
c) Peter did not beat his high score from week 1 in week 2
d) Peter had one very high score in week 1

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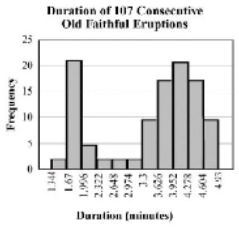
20. This histogram shows the frequency distribution of duration times for 107 consecutive eruptions of the Old Faithful geyser. The duration of an eruption is the length of time, in minutes, from the beginning of the spewing of water until it stops. What is the BEST description for the distribution?

a) Bimodal
b) uniform
c) Multiple Outliers
d) Right Skewed



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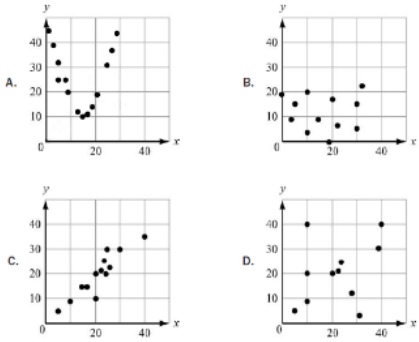
21. Which graph MOST clearly displays a set of data for which a quadratic function is the model of best fit?



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22. A scientist studied the relationship between the number of trees, x, per acre and the number of birds, y, per acre in a neighborhood. She modeled the relationship with a scatter plot and use the equation y = 4 + 6x for the regression line. What is the meaning of the slope and y – intercept of this regression line?

a) The slope is 6. This means that the average number of birds per acre in an area with no tress is 6. The y intercept is 4. This means that for every 1 additional tree, she can expect an average of 4 additional birds per acre.
b) The slope is 4. This means that for every additional tree, she can expect an average of 4 additional birds per acre. The y intercept is 6. The average number of birds per acre in an area with no tress is 6.
c) The slope is 6. This means that for every additional tree, she can expect an average of 6 additional birds per acre. The y intercept is 4. The average number of birds per acre in an area with no trees is 4.
d) The slope is 4. This means that the average number of birds per acre in an area with no trees is 4. The y intercept is 6. This means that for every 1 additional tree, she can expect an average of 6 additional birds per acre.

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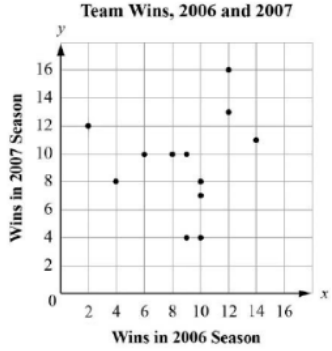
23-25: This graph plots the number of wins in the 2006 season and in the 2007 season for a sample of professional football teams.



23. Which BEST describes the correlation of the two variables shown in the scatter plot?

a) Weak positive
b) Strong positive
c) Weak negative
d) Strong negative

24. Which equation BEST represents a line that matches the trend of the data?

a) $y = x + 2$
b) $y = x + 7$
c) $y = 3/5x + 1$
d) $y = 3/5x + 5$

25. Based on the regression model, what is the predicted number of 2007 wins for a team that won 5 games in 2006?

a) 4
b) 7
c) 8
d) 12

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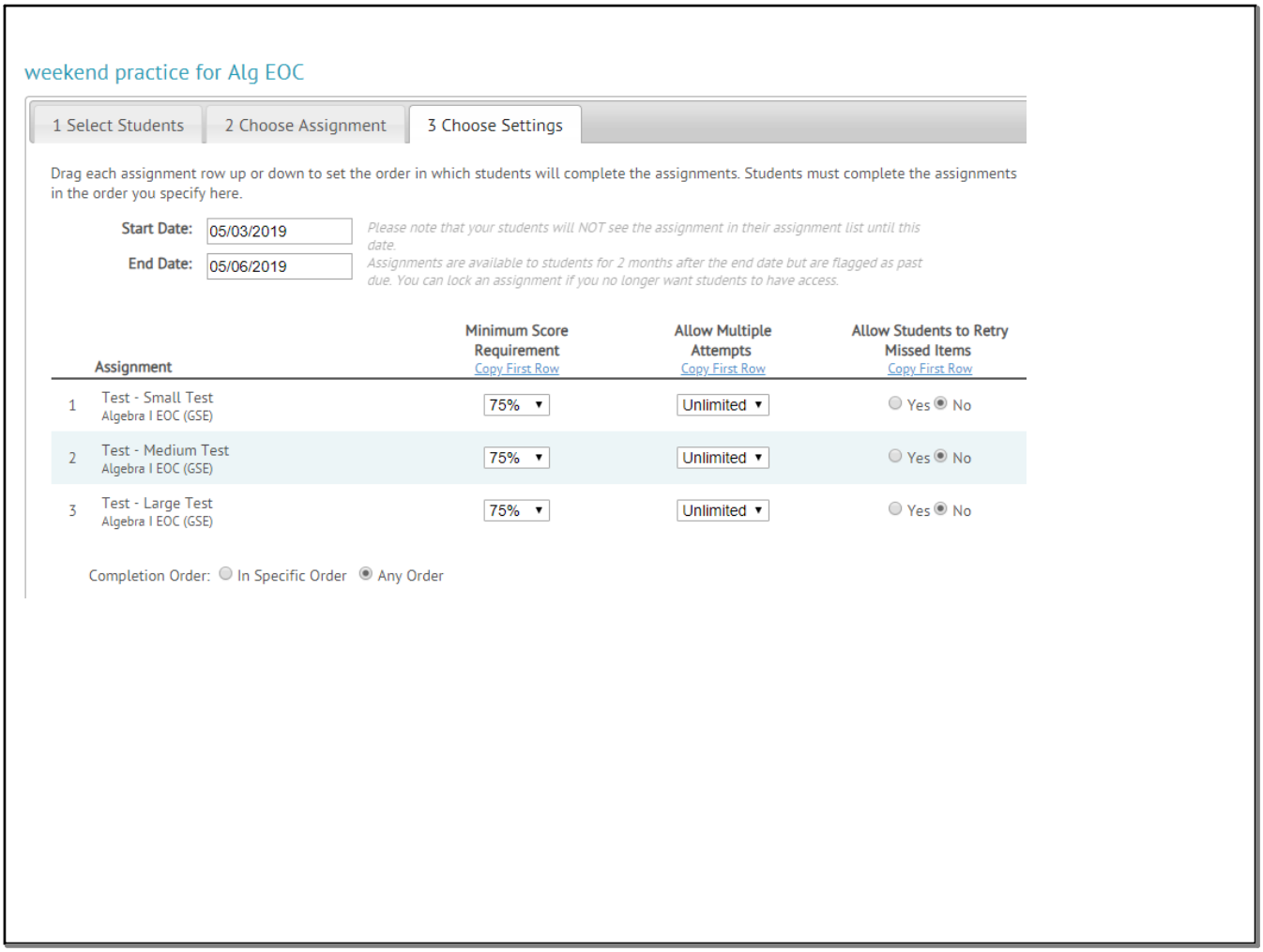

weekend practice for Alg EOC

1 Select Students | 2 Choose Assignment | 3 Choose Settings

Drag each assignment row up or down to set the order in which students will complete the assignments. Students must complete the assignments in the order you specify here.

Start Date: 05/03/2019
End Date: 05/06/2019

Please note that your students will NOT see the assignment in their assignment list until this date.
Assignments are available to students for 2 months after the end date but are flagged as past due. You can lock an assignment if you no longer want students to have access.

	Assignment	Minimum Score Requirement (Copy First Row)	Allow Multiple Attempts (Copy First Row)	Allow Students to Retry Missed Items (Copy First Row)
1	Test - Small Test Algebra I EOC (GSE)	75%	Unlimited	Yes / No
2	Test - Medium Test Algebra I EOC (GSE)	75%	Unlimited	Yes / No
3	Test - Large Test Algebra I EOC (GSE)	75%	Unlimited	Yes / No

Completion Order: In Specific Order / Any Order

Attachments

unit_4b_segment_lengths_and_volume_eoc_review_1.pdf

unit_5_geometric_and_algebraic_connections_eoc_review.pdf

unit_6_probability_eoc_review_1.pdf

unit_1_transformations_eoc_review_2019.pdf

unit_2_triangles_quadrilaterals_eoc_review_2019.pdf

unit_2b_similarity_and_proofs_eoc_review_1.pdf

unit_3_right_triangles_eoc_review_1.pdf

unit_4_circles_angles_and_area_eoc_review_1.pdf