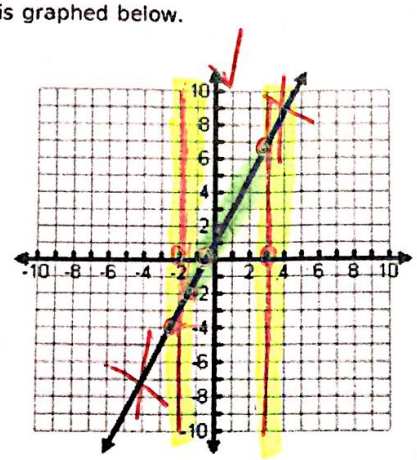
Name: _____ Date: _____ Class Period: _____

CBA District Algebra 1 Review

Review Question 1

The function $f(x) = 2x + 1$ is graphed below.



If the domain of $f(x) = 2x + 1$ is restricted so that $\{-2 \leq x \leq 3\}$, which integer is *not* in the range?

range values y-axis

A -4 outside

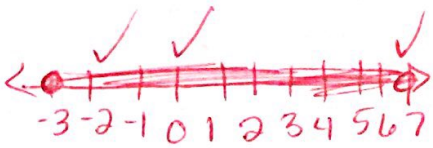
B -2 inside

C 0 inside

D 7 inside

x	y
-2	-3
-1	-1
0	1
1	3
2	5
3	7

$-3 \leq y \leq 7$



Review Question 2

If the domain of $f(x) = 2x + 3$ is $\{-3 < x \leq 0\}$, which number is *not* in the range?

A -1

B 0

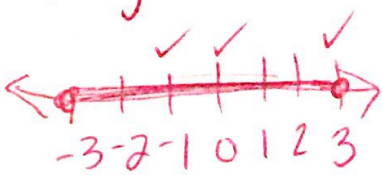
C 3

D 6 X

x	y
-3	-3
-2	-1 ✓
-1	1
0	3 ✓

Range

$-3 \leq y \leq 3$



Review Question 3

In 2005, the Shabelle River in Somalia rose an estimated 5.25 inches every hour for 15 hours. The increase in water level, $f(x)$, is represented by the function $f(x) = 5.25x$, where x is the number of hours. What is the domain of the function for this situation?

F [0, 15]

G [0, 78.75]

H (5.25, 15]

J [5.25, 78.75)

domain (x) independent

x independent variable (hours)

y dependent variable (inches)

"y" all range values

domain (x)
range (y)

Review Question 4

Cole kicked a football. The equation $h = -16t^2 + 60t$ describes the height of the ball t minutes after it was kicked. Approximately how many seconds went by before the ball hit the ground?

A 2.6 seconds

B 3.2 seconds

C 3.5 seconds

D 3.8 seconds

quadratic 2 answers

Solving Equation

$0 = -16t^2 + 60t$

$0 = t(-16t + 60)$

$t = \emptyset$

$-16t + 60 = \emptyset$

$\frac{60}{16} = \frac{16t}{16}$

$3.75 = t$

x-intercepts where the function crosses or intercepts the x-axis

$y = \emptyset$

Graph Function in Y_1

2nd Trace → CALC

#2: Zero

Left Bound Enter

Right Bound Enter

Guess Enter

x = ___ y = ___

x-intercept

Review Question 5

Solve: $x^2 + 8x + 10 = -5$

y-value

F −5, −3

G −5, 3

H 5, 2

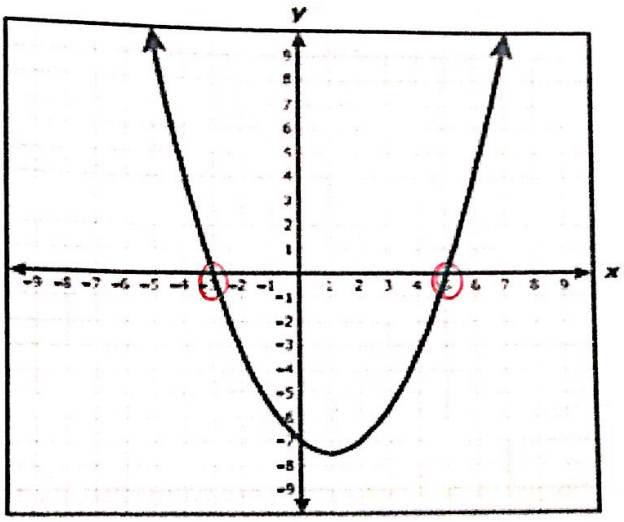
J 5, 3

F

x	y
−5	−5
−3	−5
~~2~~	30
3	43
5	75

Review Question 6

The graph of the quadratic function h is shown below.



What is the solution set for $h(x) = 0$?

$y = \emptyset \rightarrow$ x-intercept
Solution set

F $\{-3, 5\}$

G $\{-5, 3\}$

H $\{1, -7.5\}$

J $\{0, -7\}$

Review Question 7

quadratic

At which point(s) does the equation $y = 3x^2 + 9x - 30$ intersect the x-axis?

F (5, 0) and (−2, 0)

G (5, 0) and (2, 0)

H (−5, 0) and (2, 0)

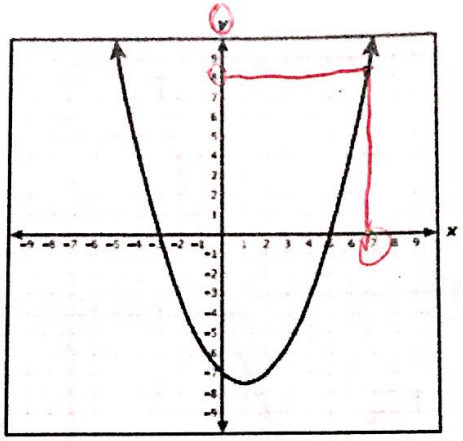
J none of the above

x	y
-5	0
-2	-36
2	0
5	90

x-intercepts

Review Question 8

The graph of a quadratic function is shown below.



What is the best estimate of the positive value of x for which this function equals 8?

right

A 2

B 4

C 13

D 7

Review Question 9

The table below contains values for x and y in a quadratic function.

x	y
−3	12
−2	0
−1	−8
0	−12
1	−12
2	8
3	0

What are the roots of this quadratic function?

x-intercept
zeros
solution set

? $y = \emptyset$

A 0 and −12

B −12, −2 and 3

C −12, 0 and 1

D −2 and 3

Review Question 10

At which point(s) does the equation $y = 3x^2 + 9x - 30$ intersect the x-axis?

F (5, 0) and (−2, 0)

G (5, 0) and (2, 0)

H (−5, 0) and (2, 0)

J none of the above

Repeat

Review Question 11

Which is an equation whose roots are 4 and −1?

F $x^2 - 3x - 4 = 0$

G $x^2 + 3x + 4 = 0$

H $x^2 - 3x + 4 = 0$

J $x^2 + 3x - 4 = 0$

x	y
4	0
−1	0

Review Question 12

What are the x-intercepts of the graph of the quadratic function $f(x) = x^2 + 5x - 24$?

A −8 and −3

B −8 and 3

C −3 and 8

D 8 and 3

x	y
−8	0
3	0

Review Question 13

Homework

Which of the following data sets is exponential?

* Plot points and graph

F {(−3, −5), (−1, 4), (0, 3)(1, 2)}

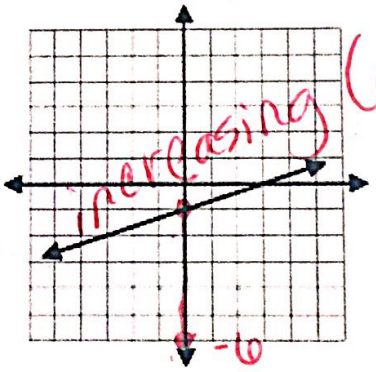
G {(−3, −1), (−2, 0), (−1, 1), (0, 2)}

H {(0, 0.1), (2, 0.9), (3, 2.7), (4, 8.1)}

J {(1, 2), (3, 5)(7, 9.5), (10, 21.7)}

Review Question 14

The graph of a line is shown below.



Which of the following is the equation of a second line that has twice the slope and is shifted down five units?

5 ↓

A $y = \frac{2}{3}x - 6$

× B $y = -\frac{2}{3}x - 1$ → neg slope

× C $y = -\frac{2}{3}x + 4$ → neg slope

× D $y = \frac{2}{3}x + 4$

eview Question 15

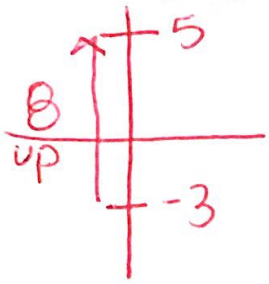
Which statement describes the effect on the vertex of the parabola $y = x^2 - 3$, if the equation is changed to $y = x^2 + 5$?

A The vertex is translated upward 5 units.

B The vertex is translated upward 8 units.

C The vertex is reflected downward 2 units.

D The vertex does not change its position.



Review Question 16

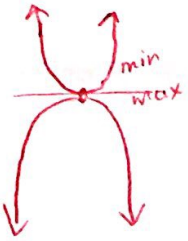
Which will be the effect on the vertex of the parabola $y = 4x^2 + 1$, if the equation is changed to $y = -4x^2 + 1$?

F The vertex is translated upward 8 units.

G The vertex is translated downward 8 units.

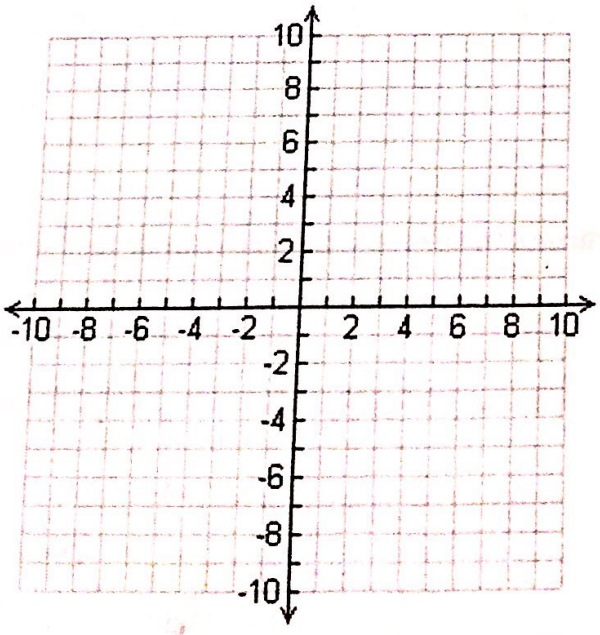
H The vertex is reflected across the x-axis.

J The vertex does not change its position.



Review Question 17

Graph the following exponential function. Make a table and state the domain, range, and y-intercept.



$y = 2^x - 3$

Domain: all real numbers

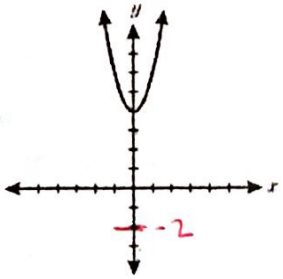
Range: $y > -3$

Y-Intercept $(0, -2)$

x	y
-2	-2.75
-1	-2.5
0	-2
1	-1
2	1

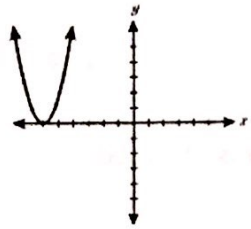
Review Question 18

The graph of $y = x^2 + 4$ is shown below.

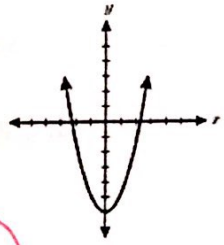


Which graph would best represent the graph of this parabola if it is translated 6 units down?

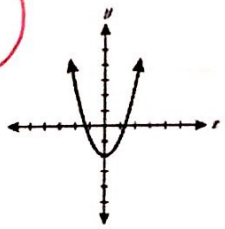
A



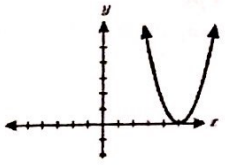
B



C



D



Review Question 19 (Short Answer)

Explain the similarities and differences between finding the domain and range of quadratic and exponential functions. Give an example of each.

Similarity Domain → all real numbers — Quadratic, Exponential

Difference Range — Quadratic: maximum point (or minimum point) ↕ downward $y \leq$?, upward $y \geq$?

→ Exponential → asymptote ↕ upward $y >$?, downward $y <$?

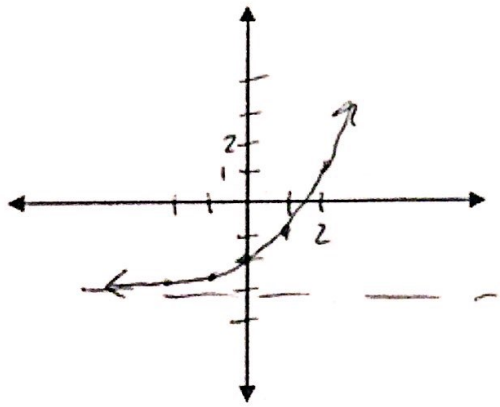
"k"-value

Key

1. A
2. D
3. F
4. D
5. F
6. F
7. H
8. D
9. D
10. H
11. F
12. B
13. H
14. A
15. B
16. J

$y = 2^x - 3$

x	y
-2	-2.75
-1	-2.5
0	-2
1	-1
2	1



Growth or Decay (circle one)

Domain: $\mathbb{R}$

Range: $y > -3$

y-intercept: $(0, -2)$

equation for asymptote: $y = -3$

17.
18. C
19. Domain – All real Numbers
    Quadratic – Range – Min/Max Point
    Exponential – Range - Asymptote