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|  |  | AlƠ <br> Test over Unit 9 | bral adobidda <br> TUESDAY 4/7. Don't forget the last |  |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & 10 \\ & 0 \\ & 0 \\ & 0 \\ & 2 \end{aligned}$ | 3/30/2015 | Objective: | English 1 STAAR |  |
|  |  | Assignment: |  |  |
|  | 3/31/2015 | Objective: | Algebra 1 Simulation |  |
|  |  | Assignment: |  |  |
| $\begin{aligned} & 7 \\ & 0 \\ & 0 \\ & 0 \\ & \hline 8 \\ & \vdots \\ & 0 \\ & 3 \end{aligned}$ | 4/ 1/2015 | Objective: | Solving Quadratics Review |  |
|  |  | Assignment: | Practice \#1-9 <br> Simulation Review Due |  |
| $\begin{aligned} & 8 \\ & 0 \\ & 0 \\ & 3 \\ & e \\ & \hline \end{aligned}$ | 4/2/2015 | Objective: | I nterpreting Quadratics |  |
|  |  | Assignment: | Practice \#1-9 |  |
| $\frac{80}{10}$ | 4/3/2015 | Objective: | Applications of Quadratics |  |
|  |  | Assignment: | Practice \#1-8 5.6 Due Tuesday |  |

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Be lw $\mathbf{k}$
Week of $\qquad$ - $\qquad$

Monday

Name: $\qquad$
Period: $\qquad$

Friday
$\qquad$
$\qquad$
Solve the equations below. Round solutions to the nearest hundredth, if necessary. State which method you used to solve.

1. $x^{2}+5 x+6=0$
2. $x^{2}-3=2 x$
3. $(x-5)^{2}=100$
4. $0=x^{2}-4$
5. $x(x+5)=y$
6. $x^{2}-5 x=0$
7. $0=x^{2}+12$
8. $-3.2 x^{2}-x+10=y$
9. Given $y=2 x^{2}-6 x-8$, find the following information below.
a. Line of symmetry: $\qquad$
b. Min/Max vertex: $\qquad$
c. Solution(s): $\qquad$
d. Graph the quadratic.
e. Domain: $\qquad$ Range: $\qquad$


## Practice - Applications of Quadratics

Name $\qquad$
Date $\qquad$ Period $\qquad$

1. An apple drops off the apple tree from a height of 8 feet. How long does it take to reach the ground? Use the function $f(t)=-16 t^{2}+8$ where $t$ is the time in seconds from when the apple was dropped, to find the answer.

A $\quad 0.5$ seconds
B 0.71 seconds
C 1 second
D 2.23 seconds

## Write an equation for each, then solve.

2. The length of a photograph is 1 cm less than twice the width. The area is $45 \mathrm{~cm}^{2}$. Find the dimensions of the photograph.
3. If the area of a rectangular garden is represented by the equation $2 w^{2}+w=36$ where $w$ is the width of the garden. What is the width of the garden in meters?
4. The length of a rectangle is twice the width. The area is 50 square inches. Find the dimensions of the rectangle.
5. The product of two consecutive even integers is 168 . Find the integers.

Algebra I - Unit 9: Topic 4 - Applications of Quadratics
6. A garden measuring 12 meters by 16 meters is to have a pedestrian pathway installed all around it, increasing the total area to 285 square meters. Write an equation in standard form that could be used to determine the width of the pathway. \{Do not solve.\}


7-8. Graph each quadratic equation below, then fill in the information.
7. Graph the equation $y=x^{2}-2 x-3$.


## Vertex:

Maximum or Minimum? Concave Up or Concave Down?
Solution(s): $\qquad$
Domain: $\qquad$
Range: $\qquad$
8. Graph the equation $y-9=x^{2}-6 x$

Vertex: $\qquad$
Maximum or Minimum?
Concave Up or Concave Down?
Solution(s): $\qquad$
Domain: $\qquad$
Range: $\qquad$
9. The circles below show a pattern.

| Stage 1 |  |
| :---: | :---: |
| Stage 2 | $\bigcirc \bigcirc$ |
| Stage 3 | $\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$ |
| Stage 4 | $\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$ |

Which expression can be used to determine the number of circles at stage $n$ ?
A $n-1$
B $2 n-1$
C $n^{2}-1$
D $n^{2}-n$

## No Textbook Correlation

Name $\qquad$ Date $\qquad$ Period $\qquad$

1. The height in feet above the ground of an arrow after it is shot can be modeled by $y=-16 x^{2}+62 x+4$. Can the arrow pass over a tree that is 68 feet tall? Explain why or why not.
2. A superhero is trying to leap over a tall building. The function $h(t)=-16 t^{2}+200 t$ gives the superhero's height in feet as a function of time. The building is 612 feet high. Will the superhero make it over the building? Explain.
3. A rocket is launched from ground level with an initial velocity of $224 \mathrm{ft} / \mathrm{s}$. The height, $h$, in feet of the rocket at any given time, $t$, in seconds is $\mathrm{h}(\mathrm{t})=224 \mathrm{t}-16 \mathrm{t}^{2}$.
A. When will the rocket reach a height of 528 feet?
B. When will the rocket reach the ground?
C. When will the rocket reach its maximum height?
D. What is the maximum height of the rocket?
E. Graph this situation, labeling axes.
F. State the domain and range of the situation.

4. A basketball player takes a shot. The graph at the right shows the height of the ball, in feet, starting from when it leaves the player's hands.
A. Estimate the height of the ball when it is released by the player?
B. Approximately when does the ball reach its maximum height?
C. What is the approximate maximum height?
D. How long does it take the ball to reach the basket, which is set at a height of 10 feet?


Time ( $s$ )

## Algebra I - Unit 9: Topic 4 - Analyzing Quadratic Graphs

5. The amount of profit a travel agent will make is given by the formula $P=70 n-n^{2}$, where $P$ is the amount of profit and $n$ is the number of students who will take the trip. The graph at the right illustrates how the profit is dependent on the number of students.
A. Approximately what number of students gives the travel agent the maximum profit?
B. What is the domain of the situation?
C. What is the meaning of this domain?
D. How many students must take the trip in order for the agent to earn at least $\$ 1000$ ?

6. The table below shows $h$, the height in meters of a model rocket, versus $t$, the time in seconds after the rocket is launched. From the table, what conclusion can be made about the flight of the rocket?

| Time in <br> seconds | 0 | 0.5 | 1 | 1.5 | 2 | 3 | 3.5 | 4.25 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Height in <br> meters | 2 | 8 | 12.5 | 15 | 16 | 13 | 8.8 | 0 |

A The rocket reached its maximum height after 2.5 seconds.
B At 0 seconds the rocket was 2 meters off the ground.
C The height of the rocket was 0 meters when it was launched.
D The rocket was in flight for 5 seconds.
7. A bakery determines the following relationship between the price of its cakes and its proily profits. Which is the best conclusion that can be drawn from the graph?

A As the selling price increases, the profits increase
B The profits range from approximately $\$ 165$ to $\$ 275$.
C An increase in the price of the cakes results in an increase in the number of cakes sold.
D The maximum number of cakes that the bakery can sell is 275 .

8. Michael threw a ball upward from the roof of a 40 -foot-high building at an initial velocity of 40 feet per second. The table shows the relationship between the time elapsed and the ball's height above the ground. If the height of the ball is a quadratic function of time, between what times did the ball reach a height of 60 feet?

| Time after Michael <br> threw the ball <br> (seconds) | Height of the ball <br> above the ground <br> (feet) |
| :---: | :---: |
| 0 | 40 |
| 0.5 | 56 |
| 1 | 64 |
| 1.5 | 64 |
| 2 | 56 |
| 2.5 | 40 |

## A Between 0 seconds and 0.5 second <br> B Between 1 second and 1.5 seconds <br> C Between 0.5 second and 1 second and between 1.5 seconds and 2 seconds

D Between 1 second and 1.5 seconds and between 1.5 seconds and 2 seconds
$\qquad$ Date $\qquad$ Class $\qquad$

## Test Preparation Practice

## Algebra 1

A.9.B Investigate, describe, and predict the effects of changes in a on the graph $y=a x^{2}+c$.

Solve each problem. Choose the best answer for each question and record your answer on the Student Answer Sheet.
Figures are not drawn to scale

1. Which statement best describes the graphs of $y=3 x^{2}$ and $y=-3 x^{2}$ ?
A One parabola is wider than the other.
B One parabola is to the left of the other.
C The parabolas have the same vertex, one opening upward and the other opening downward along the axis of symmetry.
D The graphs are the same and therefore overlap each other.
2. The following graph shows the function $y=0.2 x^{2}+3$. What would happen to the graph if the function changed to $y=0.4 x^{2}+3$ ?


F The parabola will shift up 2 units.
G The parabola will shift down 2 units.
H The parabola will be narrower.
J The parabola will shift left 0.2 units.
3. Which graph shows $y=2 x^{2}+4$ and $y=\frac{1}{2} x^{2}+4$
A


B


C


D

$\qquad$ Date $\qquad$ Class $\qquad$
4. When graphed, which function would appear to be shifted 2 units down from the graph of $f(x)=x^{2}+3$ ?


F $g(x)=x^{2}+2$
G $g(x)=x^{2}-2$
H $g(x)=x^{2}+1$
J $g(x)=x^{2}-1$
5. How would the graph of the function $y=x^{2}-3$ be affected if the function were changed to $y=x^{2}+2$ ?
A The graph would shift 2 units up.
B The graph would shift 5 units up.
C The graph would shift 5 units down.
D The graph would shift 1 unit up.
6. How does the graph of $y=x^{2}$ differ from the graph of $y=x^{2}-6$ ?
F The graph of $y=x^{2}-6$ is wider than the graph of $y=x^{2}$.
G The graph of $y=x^{2}-6$ is shifted to the left of the graph of $y=x^{2}$.
H The graph of $y=x^{2}-6$ is shifted down from the graph of $y=x^{2}$.
J The graph of $y=x^{2}-6$ is narrower than the graph of $y=x^{2}$.
7. The graph of $y=7 x^{2}+c$ is a parabola with a vertex at the origin. Which of the following is true about the value of $c$ ?
A $c>0$
B $C=0$
C $c<0$
D $c=7$
8. Which graph shows a function of $y=x^{2}+c$ when $c<-2$ ?

F


G


H


J


