**CH 1 TOPICS**

1. State the domain and range of the function. Write your answers in interval notation.
**a) Domain b) Domain**

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Range Range**

 **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**CH 2 TOPICS**

1. Write the equation and label the locator point of each graph below. Don’t forget to find the a-value. (LP = locator point)

**a)** **b)**

 Parent Equation: \_\_\_\_\_\_ Parent Equation: \_\_\_\_\_\_

 y = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 LP: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ LP: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Sketch** the parent graph of each equation and then **in a second color** the transformation on the axes provided. Name the locator point and dash in any asymptotes. Describe the transformation of the graph compared to the parent graph.

**a)** (x + 2)2 + (y + 3)2 = 4 **b)** y = 2(x – 1)2 – 3

**LP: LP:**

**Description: Description:**

1. **a)** For the “parent graph” y = f(x), describe the transformation below. Sketch the graph of the new equation on the same axes.

y = f(x + 1) - 3

**Description**

**b)** A-aron flipped the function over the x-axis and shifted it 2 units down.
 **Write the function notation** A-aron should use to express the transformation.

1. The parabolic opening to a tunnel is 32 m wide measuring from side to side along the ground. It reaches a height of 14 m at its highest point. **Determine the equation** of the function that models the opening to the tunnel, and **draw a diagram** of the situation with clearly labeled key ordered pairs.
2. Ray Guy, the Oakland Raiders punter, holds the record for the longest “hang time” (the amount of time the football stays in the air) for a punt in the National Football League (NFL) at 8 seconds. It is considered a good punt if the “hang time” lasts longer than 4.5 seconds. If a punter kicks a football with an upward velocity of 70ft/sec. and his foot meets the ball at 3 feet above the ground, the function **𝑦 = −16𝑥2 + 70𝑥 + 3** represents the height of the ball 𝑦 in feet after 𝑥 seconds.
3. **How** **high** was the football **after 2 seconds**? a) \_\_\_\_\_\_\_\_\_\_\_\_
4. **How** **long** does it take for the ball to **hit the ground**? b) \_\_\_\_\_\_\_\_\_\_\_\_
5. When was the football **57 feet** in the air? c) \_\_\_\_\_\_\_\_\_\_\_\_
6. **How high** was the football at its **maximum height**? d) \_\_\_\_\_\_\_\_\_\_\_\_
7. **When** did the football reach its **maximum height**? e) \_\_\_\_\_\_\_\_\_\_\_\_
8. Find the vertex, the equation of the axis of symmetry, the coordinates of the x-intercept(s) if there are any, and the coordinate of the y-intercept, for the following by **completing the square**. Then **graph** the equation (at least 5 points!).

**y = x2 – 6x + 9**

**Vertex: \_\_\_\_\_\_\_\_\_\_\_**

**Equation of the axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_**

**x – intercepts: \_\_\_\_\_\_\_\_\_\_\_**

**y – intercepts: \_\_\_\_\_\_\_\_\_\_\_**

1. Put the following in graphing form by **completing the square** and then **graph** the circle. Identify the **radius** and the **center** of the circle.

**x2 + y2 – 10x + 2y + 17 = 0**

 **\*\* DON’T FORGET TO LOOK OVER PIECEWISE FUNCTIONS!!! GRAPHING & EVALUATING!!! \*\***