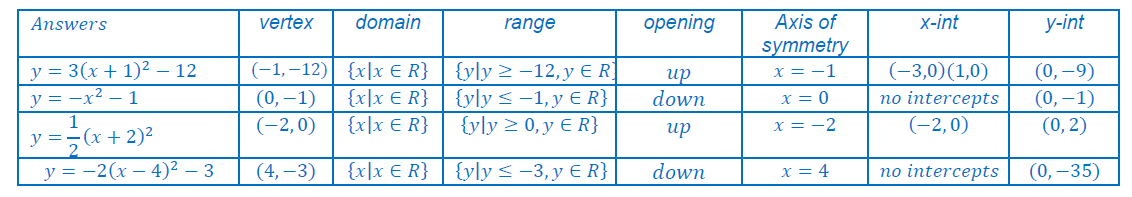
Review - Quadratic Functions

***SCO RF3: Analyze quadratic functions of the form and determine the vertex, domain and range, direction of opening, axis of symmetry, x- and y- intercepts.***

1. For each of the quadratic functions below, sketch the graph and determine the vertex, domain, range, direction of opening, axis of symmetry, x- and y-intercepts.
   1.  b.  c.  d. 

**Solutions:**

|  |  |  |  |
| --- | --- | --- | --- |
| **a.** | **b.** | **c.** | **d.** |

1. Chapter 3 Review p.198 # 3, 4bcd, 5a, 7a(iii), 8

***SCO RF4: Analyze quadratic functions of the form*** ***to identify characteristics of the corresponding graph, including: vertex, domain & range, direction of opening, axis of symmetry, x- and y-intercepts; and to solve problems.***

1. Recent annual inflation rates, y (in percent), in a South American country are given by the function  
   , where x represents the number of years from now.
   1. In how many years will the inflation rate be a minimum? (**Answer:** 6 years)
   2. What will the minimum inflation rate be? (**Answer:** 10%)
2. Chapter 3 Review p.199-200 # 9a, 12b
3. For each of the following quadratic functions,

i) determine the vertex, domain, range, direction of opening, axis of symmetry, & y-intercept

ii) convert each function to vertex form.

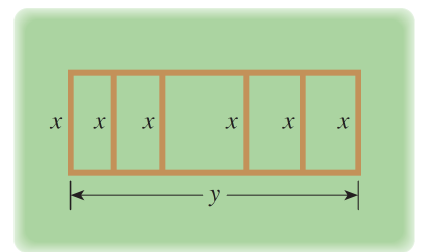
* 1.  b.  c.  d. 

**Solutions:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Function** | **Vertex** | **Domain** | **Range** | **Opening** | **Axis of symmetry** | **y-intercept** |
|  | (5, -6) |  |  | up | x = 5 | ( 0, 19) |
|  | (-3, -5) |  |  | up | x = -3 | ( 0, 22) |
|  | (-2, -15) |  |  | down | x = -2 | ( 0, -23) |
|  | (9, 23) |  |  | down | x = 9 | ( 0, 31) |



1. A skateboard park is to be fenced off at a local area. There are 66 m of fencing available for the court. The court will border the recreation building on one side. What dimensions could the court have that would maximize the area? What is the maximum area?

(**Answer:** dimensions: 16.5 m by 33 m, max area: 544.5 m2)

1. If 1800 feet of fencing are available to build five adjacent pens,

as shown in the given diagram, express the total area of the pens

as a function of x. Determine the dimensions that would maximize

the area. What is the maximum area?  
(**Answer:** dimensions: 150 feet by 450 feet, max area: 67 500 square feet)

1. Chapter 3 Practice Test p.203 # 16
2. Convert the function  into standard form. 
3. Two numbers have a difference of 18. The sum of their squares is a minimum. Determine the numbers.  
    (**Answer:** The numbers are 9 and -9. Minimum value is 162.)