**Math 30-1 2. Radical Functions Review**

1. Graph each function using a table of values. Then, identify the domain and range.

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

   

 Domain Domain Domain

 Interval Notation

 Range Range Range

 Set Builder Notation

1. Explain in words how to transform the graph of **** to obtain the graph of each function. State the domain and range in each case.

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

1. Match each function with its graph.

**a)**  **b)**  **c)**  **d)** 

    

1. Sketch a possible graph for each situation involving the transformations  on the graph of .

a)  b)  c) d)

1. The point (4, *y*) is on the graph of  The graph is transformed into *g* (*x*) by a horizontal stretch by a factor of 2, a reflection about the *x*-axis, and a translation up 3 units. Determine the coordinates of the corresponding point on the graph of *g* (*x*).
2. The graph of  was translated horizontally and vertically only. The domain of the translated graph is and the range is . Describe the horizontal and vertical translations in words and using the notation .
3. The point (4, 10) is on the graph of the function  What is the value of *k*?
4. Write the equation of a radical function that would result by applying each set of transformations to the graph of  .

**a)** horizontal reflection in the *y*-axis, translation up 3 units, and translation left 2 units

**b)** vertical reflection in the *x*-axis, horizontal stretch by a factor of and translation down 7 units

1. Explain how to transform the graph of  to obtain the graph of each function.

a)  b) 

1. For each function, write an equation of a radical function of the form 

 a) b)

1. For each point given on the graph of *y*  *f* (*x*), does a corresponding point on the graph of  exist? If so, state the coordinates to the nearest hundredth.

**a**) (9, 121) **b)** (−2, 7) **c)** (32, −1)

1. Determine the domains and ranges of each pair of functions. Explain why the domains and ranges differ.

**a)** *y*  *x*  5,  **b)** *y*  *x*  10, 

1.  Using the graph of *y*  *f* (*x*), sketch the graph of

 State the domain and range of

 State the invariant points.

1. Use technology to graph *y*  *x*2  *x*  20 and

Provide a sketch in the window.

List window settings

X{ \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_}

Y { \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_}

List the domain and range for 

Why is the graph of  undefined over an interval?

State the coordinates of all invariant points.

1. The graph of  is shown. Provide a possible sketch for the graph of .



1. The solutions to a radical equation can also be referred to as the \_\_\_\_\_\_ of the equation.

The solutions to a radical equation are related to the \_\_\_\_\_\_\_\_ of the graph of the related function.

1. Solve each equation graphically.

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

1. Solve  algebraically.
2. The speed of a tsunami wave in the ocean is related to the depth of the water by the equation where *s* is the speed of the wave, in metres per second, and *d* is the depth of the water, in metres. What is the depth of the water, to the nearest metre, if the speed of a tsunami wave is 10 m/s?
3. The radius, *r*, of a sphere is related to the surface area, *A*, by the equation 

**a)** The surface area of a baseball is about 172 cm2. Find the radius of a baseball, to the nearest tenth of a centimetre.

**b)** The radius of a tennis ball is about
3.3 cm. Find the surface area, to the nearest square centimetre.

1. **Multiple Choice:** Given that the point (*x*, 4*x*2), *x* ≥ 0, is on the function *y*  *f* (*x*), which of the following is the point on?

**A** ( 4*x*2) **B** (*x*, 2*x*) **C** (*x*, 2*x*2) **D (**2*x*)

1. **Multiple Choice:** The radical function  has an *x*-intercept at 2. If the graph of the function is stretched horizontally by a factor of  about the *y*-axis, what is the new *x*-intercept?

**A** 2 **B** 1 **C**  **D** 