LG 4 Ver A

Name: _____ Student #:_____

Date:_____ T.A. #:_____

Mathematics 12 Pre-Calculus
LEARNING GUIDE 4 QUIZ – RADICAL FUNCTIONS

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***Full marks will NOT be given for the final answer only.**

When using a calculator, you should provide a decimal answer that is correct **to at least two decimal places** (unless otherwise indicated). Such rounding should occur **only** in the final step of the solution.

1. What transformations need to be made to the function $y = \sqrt{x}$ to obtain the graph of the function $y = 3\sqrt{-(x+2)} + 5$? (2 marks)

2. Determine the equation of the radical function, which has been transformed from $f(x) = \sqrt{x}$ by a reflection in the y axis, a vertical expansion by a factor of 3, moved right 3 and down 4. (2 marks)

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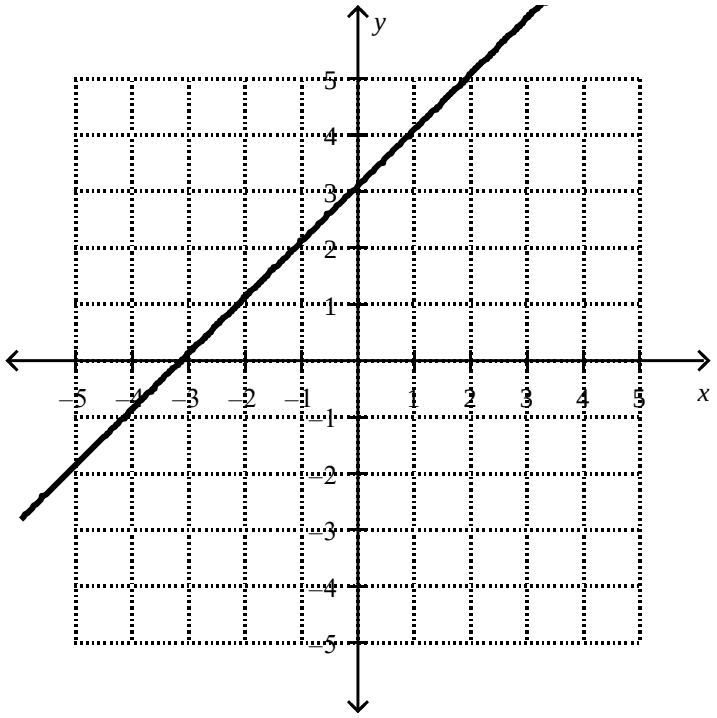
3. Determine the domain and range of the following function: (2 marks)

$f(x) = \sqrt{-2x} + 3$

4. Using this graph of $y = f(x)$, sketch the graph of $y = \sqrt{f(x)}$. (2 marks)



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5. Given the function $f(x) = 8 - x^2$, identify the differences in the domains and ranges of $y = f(x)$ and $y = \sqrt{f(x)}$. (2 marks)

6. Solve the equation $x + 6 = \sqrt{-6 - x}$ algebraically. (2 marks)

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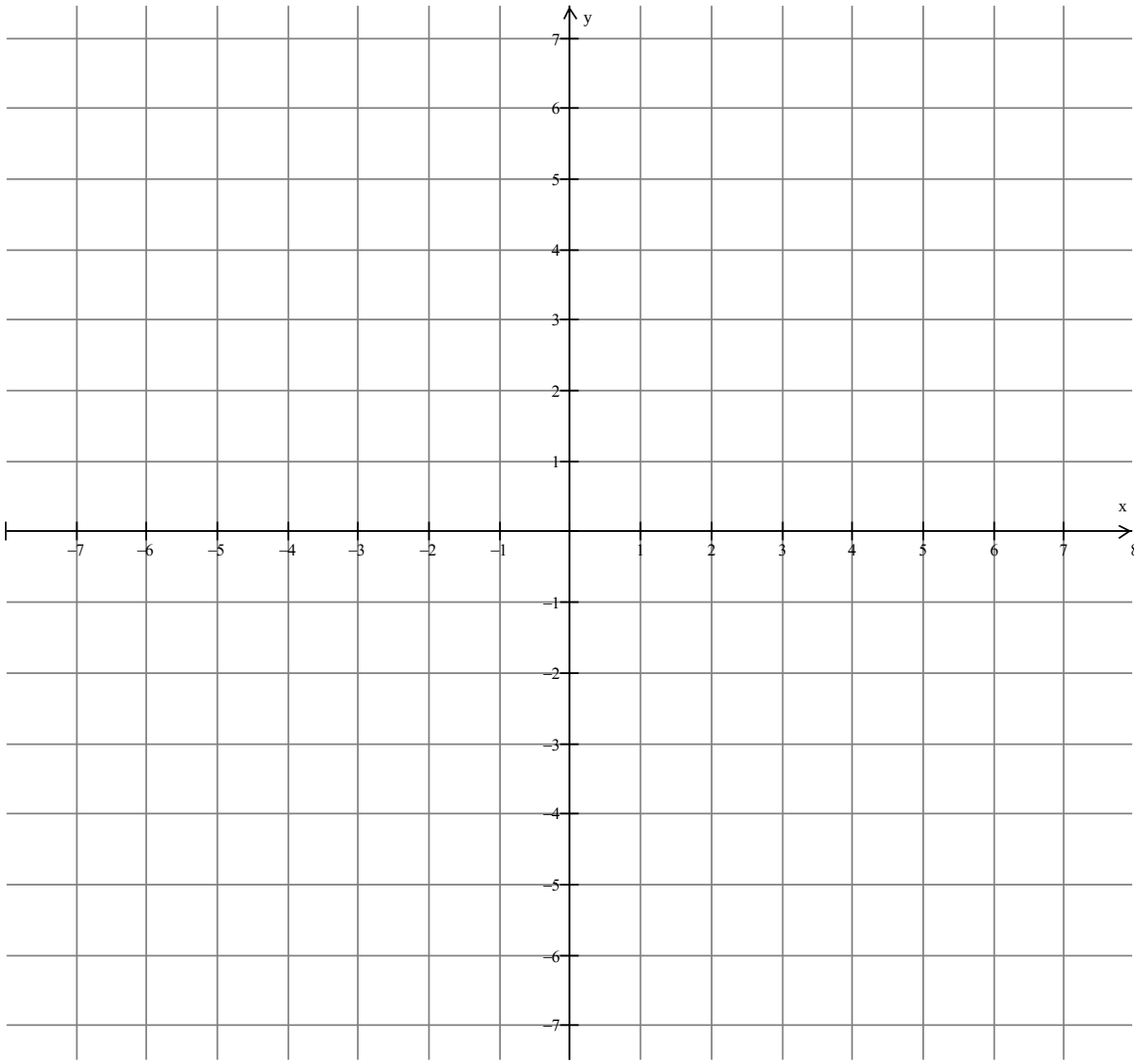
7. Solve the equation $\sqrt{7x+3} = 4$ graphically. Be sure to indicate the equations of the function(s) used in the graph and how the graph(s) help you determine the solution. (2 marks)



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8. The speed, *s*, in metres per second, of sound in dry air is can be described by the function $s = 331.3\sqrt{1 + \frac{T}{273.15}}$, where *T* is temperature, in degrees Celsius.

a) Determine the speed of sound, to the nearest tenth of a metre per second, when the temperature is –8°C. (1 mark)

b) If the speed of sound is 355m/s, what is the air temperature? Solve algebraically or graphically. If solved graphically, be sure to sketch the graph(s) used and clearly indicate the equation(s) of the graphs and how the graph(s) led to the solution. (2 marks)

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