**INTRODUCTION TO FUNCTIONS**

**FUNCTIONS**

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| 1. Find the domain of the function $f\left(x\right)=\frac{2x+1}{x^{2}+x-2}$
 | 1. If$f\left(x\right)=x^{2}-2x+7, $then find $f\left(-5\right), f\left(x+4\right), and f\left(-x\right).$
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| 1. Without using a calculator, make a rough sketch of the graphs: $ y= \sqrt{x}$ $y= -2^{x}$
 | 1. Find the domain of the function: $j\left(x\right)=\frac{3x+2}{\sqrt{14-2x}}$
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| 1. If $\left(x\right)=\left\{\begin{array}{c}1-x^{2} if x\leq 0\\2x+1 if x>0\end{array}\right.$ , evaluate $f\left(-2\right) and f(1)$.
 | 1. Find $f+g, fg, f-g, and \frac{f}{g}$ for $$f\left(x\right)=2x-1, g\left(x\right)=x^{2}+x-2$$
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| 1. If $f\left(x\right)= x^{2}+2x-1 and g\left(x\right)= 2x-3,$ find $g ∘ f$.
 | 1. Find the inverse of the function: $f\left(x\right)=\frac{x+2}{x-3}, x\ne 3$.
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**GRAPHING**

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| 1. Graph y = 3x + 1
 | 1. Graph $f\left(x\right)=\left(x+3\right)^{2}+1$
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| 1. Graph 2y - 4x = 8
 | 1. Graph $f\left(x\right)=-3x^{2}+6x-13$
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| 1. Identify the vertex and axis of symmetry and then graph $y=2x^{2} –8x -6$
 | 1. Graph $y-3=\left(x-1\right)^{2}$
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| 1. Graph $f\left(x\right)=\left\{\begin{array}{c}x^{2}, x\leq 0\\2, 0<x<2\\x+1, x\geq 2\end{array}\right.$
 | 1. Find the coordinates of the vertex for the parabola defined by the given quadratic equation:$$f\left(x\right)=-2\left(x+1\right)^{2}+5$$
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| 1. Graph: $\left\{\begin{array}{c}4x-2y>6\\x+y\geq 4\end{array}\right.$

**EVALUATING FUNCTIONS**1. If $g\left(x\right)=-x^{2}+4x+1$, find g(2), g(x), g(x + 2).
2. If $f\left(y\right)=2x-3)$, find$f\left(1\right), f\left(-3\right), f\left(x-1\right).$
3. If $f\left(x\right)=2x^{2}-5$ and $g\left(x\right)=3x-2:$

find $f\left(g\right)x, \left(f+g\right)x, \left(f-g\right)x,f∙g(x)$ | 1. Find the minimum or maximum value and determine where it occurs and identify the functions domain and range: $$f\left(x\right)=3x^{2}-12x-1$$

$$g\left(x\right)=5x^{2}-5x$$1. If $f\left(x\right)=5x-4 $and $g\left(x\right)=-3x-2:$

find g$\left(g\right)x, \left(f+g\right)x, \left(f-g\right)x,f∙g(x)$ |
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