Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_HWK Function Operations and their related graphs 1 Hour\_\_\_\_\_\_

You are given the following functions

|  |  |  |  |
| --- | --- | --- | --- |
| $$f\left(x\right)=2x+4$$State the domain using any methodState the range using any method  | $$g\left(x\right)=x^{2}-3x$$State the domain using any methodState the range using any method State the local extreme as a point  | $$h\left(x\right)=\sqrt{x-4}$$State the domain using any methodState the range using any method State the local extreme as a point  | $$j\left(x\right)=\frac{1}{x-10}$$State the domain using any methodState the range using any method State the asymptotes as lines |

|  |  |
| --- | --- |
| Give a detailed sketch for f(x) | Give a detailed sketch for g(x) |
| Give a detailed sketch for h(x) | Give a detailed sketch for j(x) |

You are given the following functions

|  |  |  |  |
| --- | --- | --- | --- |
| $$f\left(x\right)=2x+4$$ | $$g\left(x\right)=x^{2}-3x$$ | $$h\left(x\right)=\sqrt{x-4}$$ | $$j\left(x\right)=\frac{1}{x-10}$$ |

|  |  |  |  |
| --- | --- | --- | --- |
| Write $\left(f+g\right)\left(x\right)$ in its simplest form | Write $\left(f-g\right)\left(x\right)$ in its simplest form | Write $\left(fg\right)\left(x\right)$ in its simplest form | Write $\left(\frac{f}{g}\right)\left(x\right)$ in its simplest formState this function’s domain restrictions |

|  |  |
| --- | --- |
| Give a detailed sketch for $\left(f+g\right)\left(x\right)$ | Give a detailed sketch for $\left(f-g\right)\left(x\right)$ |
| Give a detailed sketch for $\left(fg\right)\left(x\right)$ | Give a detailed sketch for $\left(\frac{f}{g}\right)\left(x\right)$ |

You are given the following functions

|  |  |  |  |
| --- | --- | --- | --- |
| $$f\left(x\right)=2x+4$$ | $$g\left(x\right)=x^{2}-3x$$ | $$h\left(x\right)=\sqrt{x-4}$$ | $$j\left(x\right)=\frac{1}{x-10}$$ |

|  |  |  |  |
| --- | --- | --- | --- |
| Write $\left(g-f\right)\left(x\right)$ in its simplest form | Write $\left(f\left(g(x\right)\right)$ in its simplest form | Write $\left(g\left(f(x\right)\right)$ in its simplest form | Write $\left(\frac{g}{f}\right)\left(x\right)$ in its simplest formState this function’s domain restrictions |

|  |  |
| --- | --- |
| Give a detailed sketch for $\left(g-f\right)\left(x\right)$ | Give a detailed sketch for $\left(f\left(g(x\right)\right)$ |
| Give a detailed sketch for $\left(g\left(f(x\right)\right)$ | Give a detailed sketch for $\left(\frac{g}{f}\right)\left(x\right)$ |

Which of the functions above are compositions?

You are given the following functions

|  |  |  |  |
| --- | --- | --- | --- |
| $$f\left(x\right)=2x+4$$ | $$g\left(x\right)=x^{2}-3x$$ | $$h\left(x\right)=\sqrt{x-4}$$ | $$j\left(x\right)=\frac{1}{x-10}$$ |

|  |  |  |  |
| --- | --- | --- | --- |
| Write $\left(f-j\right)\left(x\right)$ in its simplest form | Write $\left(h\left(g(x\right)\right)$ in its simplest form | Write $\left(h\left(f(x\right)\right)$ in its simplest form | Write$\left(j\left(g(x\right)\right)$ in its simplest formState this function’s domain restrictions |

|  |  |
| --- | --- |
| Give a detailed sketch for $\left(f-j\right)\left(x\right)$ | Give a detailed sketch for $\left(h\left(g(x\right)\right)$ |
| Give a detailed sketch for $\left(h\left(f(x\right)\right)$ | Give a detailed sketch for $\left(j(g(x)\right)$ |

Explain the difference between the two compositions $\left(f\left(g(x\right)\right)$ and $\left(g\left(f(x\right)\right)$?