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| **Fill in the Blanks** | **Composite Functions** |

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| --- | --- | --- | --- |
| $$f(x)$$ | $$g(x)$$ | $$fg(x)$$ | $$gf(x)$$ |
| $$f\left(x\right)=x-3$$ | $$g\left(x\right)=x^{2}$$ | $$fg\left(x\right)=x^{2}-3$$ | $$gf\left(x\right)=(x-3)^{2}$$ |
| $$f\left(x\right)=\frac{x}{5}$$ | $$g\left(x\right)=x+1$$ |  |  |
| $$f\left(x\right)=3x$$ | $$g\left(x\right)=7-x$$ |  |  |
| $$f\left(x\right)=\sqrt{x}$$ | $$g\left(x\right)=\frac{x}{4}$$ |  |  |
| $$f\left(x\right)=2x+9$$ | $$g\left(x\right)=x-3$$ | $$fg\left(x\right)=2x+3$$ |  |
| $$f\left(x\right)=x^{2}-1$$ | $$g\left(x\right)=\frac{x}{3}$$ |  |  |
| $$f\left(x\right)=\sqrt{x}$$ | $$g\left(x\right)=4-3x$$ |  |  |
| $$f\left(x\right)=\frac{2x}{5}$$ | $$g\left(x\right)=x^{2}$$ |  | $$gf\left(x\right)=\frac{4x^{2}}{25}$$ |
| $$f\left(x\right)=\frac{1}{x}$$ | $$g\left(x\right)=2x-3$$ |  |  |
| $$f\left(x\right)=9-x$$ | $$g\left(x\right)=\sqrt{2x}$$ |  |  |
| $$f\left(x\right)=3x-1$$ | $$g\left(x\right)=\frac{2}{x+1}$$ |  |  |
|  | $$g\left(x\right)=x-3$$ | $$fg\left(x\right)=\frac{x-3}{10}$$ |  |
| $$f\left(x\right)=2x+1$$ |  | $$fg\left(x\right)=2x^{3}+1$$ |  |
|  |  | $$fg\left(x\right)=\frac{1}{x^{2}+2}$$ | $$gf\left(x\right)=\frac{1}{x^{2}}+2$$ |