### Lesson 22 Practice Problems

1. Identify all values of $x$ that make the equation true.
	1. $\frac{2x+1}{x}=\frac{1}{x−2}$
	2. $\frac{1}{x+2}=\frac{2}{x−1}$
	3. $\frac{x+3}{1−x}=\frac{x+1}{x+2}$
	4. $\frac{x+2}{x+8}=\frac{1}{x+2}$
2. Kiran is solving $\frac{2x−3}{x−1}=\frac{2}{x\left(x−1\right)}$ for $x$, and he uses these steps:
* $\begin{matrix}\frac{2x−3}{x−1}&=\frac{2}{x\left(x−1\right)}\\\left(x−1\right)\left(\frac{2x−3}{x−1}\right)&=x\left(x−1\right)\left(\frac{2}{x\left(x−1\right)}\right)\\2x−3&=2\\2x&=5\\x&=2.5\end{matrix}$
* He checks his answer and finds that it isn't a solution to the original equation, so he writes “no solutions.” Unfortunately, Kiran made a mistake while solving. Find his error and calculate the actual solution(s).
1. Identify all values of $x$ that make the equation true.
	1. $x=\frac{25}{x}$
	2. $x+2=\frac{6x−3}{x}$
	3. $\frac{x}{x^{2}}=\frac{3}{x}$
	4. $\frac{6x^{2}+18x}{2x^{3}}=\frac{5}{x}$
2. Is this the graph of $g\left(x\right)=-x^{4}\left(x+3\right)$ or $h\left(x\right)=x^{4}\left(x+3\right)$? Explain how you know.
* 
* (From Unit 2, Lesson 10.)
1. Rewrite the rational function $g\left(x\right)=\frac{x−9}{x}$ in the form $g\left(x\right)=c+\frac{r}{x}$, where $c$ and $r$ are constants.
* (From Unit 2, Lesson 18.)
1. Elena has a boat that would go 9 miles per hour in still water. She travels downstream for a certain distance and then back upstream to where she started. Elena notices that it takes her 4 hours to travel upstream and 2 hours to travel downstream. The river’s speed is $r$ miles per hour. Write an expression that will help her solve for $r$.
* (From Unit 2, Lesson 21.)



© CC BY 2019 by Illustrative Mathematics®