### Lesson 21 Practice Problems

1. Solve $x−1=\frac{x^{2}−4x+3}{x+2}$ for $x$.
2. Solve $\frac{4}{4−x}=\frac{5}{4+x}$ for $x$.
3. Show that the equation $\frac{1}{60}=\frac{2x+50}{x(x+50)}$ is equivalent to $x^{2}−70x−3,​000=0$ for all values of $x$ not equal to 0 or -50. Explain each step as you rewrite the original equation.
4. Kiran jogs at a speed of 6 miles per hour when there are no hills. He plans to jog up a mountain road, which will cause his speed to decrease by $r$ miles per hour. Which expression represents the time, $t$, in hours it will take him to jog 8 miles up the mountain road?
	1. $t=\frac{8−r}{6}$
	2. $t=\frac{8}{6+r}$
	3. $t=\frac{6+r}{8}$
	4. $t=\frac{8}{6−r}$
5. The rational function $g(x)=\frac{x+10}{x}$ can be rewritten in the form $g(x)=c+\frac{r}{x}$, where $c$ and $r$ are constants. Which expression is the result?
	1. $g(x)=x+\frac{10}{x}$
	2. $g(x)=1+\frac{10}{x}$
	3. $g(x)=x−\frac{10}{x+10}$
	4. $g(x)=1−\frac{1}{x+10}$
* (From Unit 2, Lesson 18.)
1. For each equation below, find the value(s) of $x$ that make it true.
	1. $10=\frac{1+7x}{7+x}$
	2. $0.2=\frac{6+2x}{12+x}$
	3. $0.8=\frac{x}{0.5+x}$
	4. $3.5=\frac{4+2x}{0.5−x}$
* (From Unit 2, Lesson 20.)
1. A softball player has had 8 base hits out of 25 at bats for a current batting average of $\frac{8}{25}=.320$.
* How many consecutive base hits does she need if she wants to raise her batting average to .400? Explain or show your reasoning.
* (From Unit 2, Lesson 20.)



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