### Lesson 24 Practice Problems

1. Is $a^{6}+b^{6}=\left(a^{2}+b^{2}\right)\left(a^{4}−a^{2}b^{2}+b^{4}\right)$ an identity? Explain or show your reasoning.
2. Match each lettered expression with the number of an expression equivalent to it.
	1. $\frac{1}{a}+\frac{1}{a+1}$
	2. $\frac{a+1}{a−1}+\frac{a+1}{a}$
	3. $\frac{1}{a}+\frac{2}{a+1}$
	4. $\frac{a}{a−1}−\frac{1}{a+1}$
	5. $\frac{a}{a+1}+\frac{a}{a−1}$
	6. $\frac{2a^{2}}{a^{2}−1}$
	7. $\frac{3a+1}{a^{2}+a}$
	8. $\frac{2a+1}{a^{2}+a}$
	9. $\frac{2a^{2}+a−1}{a^{2}−a}$
	10. $\frac{a^{2}+1}{a^{2}−1}$
3. Let $\left(x^{2}+5x+4\right)\left(x+2\right)=A\left(x+1\right)$. If this is an identity, what is a possible expression for $A$?
4. What are the points of intersection between the graphs of the functions $f\left(x\right)=\left(x+6\right)\left(2x+1\right)$ and $g\left(x\right)=2x+1$?
* (From Unit 2, Lesson 11.)
1. Identify all values of $x$ that make the equation true.
	1. $\frac{x+5}{x+11}=\frac{1}{x+5}$
	2. $\frac{2x−3}{x}=\frac{14}{x+5}$
* (From Unit 2, Lesson 22.)
1. Match each expression in the lettered list with the number of an expression equivalent to it.
	1. $\left(x−1\right)\left(x^{3}+x^{2}+x+1\right)$
	2. $\left(x+6\right)\left(x−6\right)$
	3. $\left(x−1\right)^{3}$
	4. $x^{4}−36$
	5. $\left(x+2\right)^{3}−x^{3}$
	6. $x^{3}−3x^{2}+3x−1$
	7. $\left(x^{2}+6\right)\left(x^{2}−6\right)$
	8. $x^{2}−36$
	9. $2\left(3x^{2}+6x+4\right)$
	10. $x^{4}−1$
* (From Unit 2, Lesson 23.)



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