Lesson 24 Practice Problems

1. Is $a^6 + b^6 = (a^2 + b^2)(a^4 - a^2b^2 + b^4)$ an identity? Explain or show your reasoning.

2. Match each lettered expression with the number of an expression equivalent to it.

A. $\frac{1}{a} + \frac{1}{a+1}$	1. $\frac{2a^2}{a^2-1}$
B. $\frac{a+1}{a-1} + \frac{a+1}{a}$	2. $\frac{3a+1}{a^2+a}$
C. $\frac{1}{a} + \frac{2}{a+1}$	3. $\frac{2a+1}{a^2+a}$
D. $\frac{a}{a-1} - \frac{1}{a+1}$	4. $\frac{2a^2+a-1}{a^2-a}$
E. $\frac{a}{a+1} + \frac{a}{a-1}$	5. $\frac{a^2+1}{a^2-1}$

3. Let $(x^2 + 5x + 4)(x + 2) = A(x + 1)$. 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 $f(x) = (x + 6)(2x + 1)$ and $g(x) = 2x + 1$?

(From Unit 2, Lesson 11.)

5. Identify all values of x that make the equation true.

a. $\frac{x+5}{x+11} = \frac{1}{x+5}$

b. $\frac{2x-3}{x} = \frac{14}{x+5}$

(From Unit 2, Lesson 22.)

6. Match each expression in the lettered list with the number of an expression equivalent to it.

A. $(x-1)(x^3+x^2+x+1)$	1. x^3-3x^2+3x-1
B. $(x+6)(x-6)$	2. $(x^2+6)(x^2-6)$
C. $(x-1)^3$	3. x^2-36
D. x^4-36	4. $2(3x^2+6x+4)$
E. $(x+2)^3-x^3$	5. x^4-1

(From Unit 2, Lesson 23.)