Adding and Subtracting Rational Expressions

Add/Subtract the following rational expressions and state restrictions on the variables:

1) \[ \frac{3}{x} + \frac{7}{x} - \frac{11}{x} \]  
2) \[ \frac{a+6}{a} - \frac{3a-2}{a} \]  
3) \[ \frac{3}{x} + \frac{2}{y} \]  
4) \[ \frac{6a}{a} - \frac{3a+2}{a^2} \]  
5) \[ \frac{2x-3}{x-4} - \frac{x+7}{x-4} + \frac{x+3}{x-4} \]  
6) \[ \frac{x-1}{x+2} - \frac{x+7}{x-3} \]  
7) \[ \frac{4}{a-7} + 1 \]  
8) \[ \frac{5}{x-3} - \frac{8}{3-x} \]  
9) \[ \frac{5}{2x-3} + \frac{3x}{3x+5} \]  
10) \[ \frac{x+4}{x^2-121} - \frac{3x-2}{x^2+8x-33} \]  
11) \[ \frac{x-1}{x^2+3x-10} + \frac{2x-1}{x^2+8x+15} \]

Application #1

Two triangles have the same base length, represented by \( x \) . The height of one triangle is \( x+1 \) and the height of the other triangles is \( x + 3 \) . Write and simplify an expression that represents the total area of the two triangles.

Application #2

Rectangle A and Rectangle B each have the same length of \( 2x+1 \) . Rectangle A has an area of \( 6x^2+5x+1 \). Rectangle B has an area of \( 4x^2-4x-3 \) . Find an expression that represents the ratio of width A to width B.

Homework: Textbook pg 128 #6-8