

1. Solve for x .

(a) $\sqrt{2x+5} + 5 = x$

(b) $\sqrt{x-3} + \sqrt{x-6} = \sqrt{x+2}$

(c) $\frac{\frac{1}{1+x}}{1 - \left(\frac{1}{1+x}\right)} = 7$

(d) $\frac{1}{x-2} + \frac{6}{x+2} - \frac{7}{x} = \frac{5}{2}$

2. Simplify the expressions.

(a) $\frac{4x}{\sqrt{2x} - \sqrt{x}}$

(b) $\frac{4 - \frac{1}{x+5}}{\frac{7}{x+2} - \frac{3}{x+3}}$

3. Provide some choice of numbers x, y, z such that

$$\sqrt{x^2 + y^2 + z^2} \neq x + y + z.$$