

1. What are the restrictions on x if the following expressions and equations involve real numbers?

a) $8 = \sqrt{-3x} - 10$

b) $7 + \sqrt{3 - 2x} = 14$

c) $\sqrt{3x - 1} + x = 21$

2. Solve each of the following radical equations algebraically.

a) $\sqrt{x+2} + 3 = 7 - \sqrt{x-4}$

b) $\sqrt{4x-10} - 5 = 2\sqrt{x}$

c) $\sqrt{x+5} - \sqrt{x-7} = -2$

d) $\sqrt{x} + \sqrt{x-6} = \frac{18}{\sqrt{x-6}}$

3. Three less than 5 times the square root of a number is 17, find the number.

ANSWERS

1a) $x \leq 0$ 1b) $x \leq \frac{3}{2}$ 1c) $x \geq \frac{1}{3}$

2a) $x = \frac{89}{16}$ 2b) $x = \frac{49}{16}$, but $\frac{49}{16}$ is extraneous \therefore no solution

2c) $x = 11$, but 11 is extraneous \therefore no solution 2d) $x = \frac{96}{7}$

3. The number is 16