

$$\frac{3+x}{2} - \frac{2x-7}{3} = 3$$

$$\frac{9+3x}{6} - \frac{4x-14}{6} = 3$$

$$9+3x-4x+14=18$$

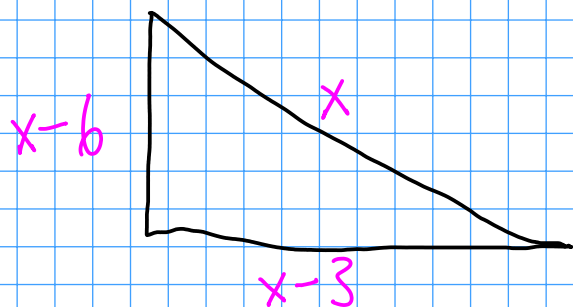
$$-x = 18-9-14$$

$$-x = -5$$

$$x = 5$$

$$S = \{5\}$$

(5) [5 points] The shortest side of a right-angled triangle is 6cm shorter than its hypotenuse. The difference in length of the other two sides is 3cm. Find the length of the hypotenuse.



$$(x-6)^2 + (x-3)^2 = x^2$$

$$x^2 - 12x + 36 + x^2 - 6x + 9 = x^2$$

$$x^2 - 18x + 45 = 0$$

$$x_{1,2} = \frac{18 \pm \sqrt{324 - 4 \cdot 45}}{2} = \begin{matrix} 15 \\ 3 \end{matrix}$$

The length of the hypotenuse is 15.