

**Solving Rational Equations**

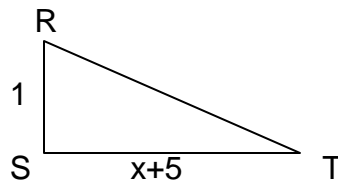
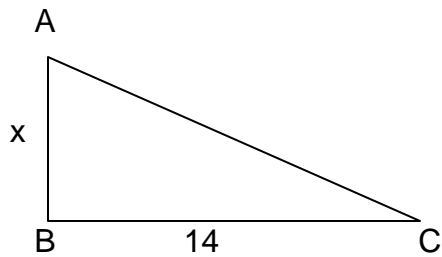
Class Examples:

1.  $\frac{5}{x-2} = \frac{x}{3}$

2.  $\frac{10}{x-3} = \frac{9}{x+5}$

3.  $\frac{x-6}{2x} = \frac{2}{3}$

4.  $\frac{3}{n+2} = \frac{12}{n(n+2)}$

5. Find the value of  $x$ . Be sure to check for any extraneous solutions. $\triangle ABC \sim \triangle RST$ 

Solve each rational equation. **Be sure to check for any extraneous solutions.**

1.  $\frac{3}{x+5} = \frac{2}{x}$

2.  $\frac{x-4}{2x} = \frac{1}{3}$

3.  $\frac{2}{y+3} = \frac{y}{5}$

4.  $\frac{x-15}{17} = \frac{-1}{x+3}$

5.  $\frac{3}{x+5} = \frac{5}{x}$

6.  $\frac{b-1}{2b} = \frac{b}{2b+3}$

7. If a scuba diver goes to depths greater than 33 feet, the function  $t = \frac{1700}{d-33}$  gives the maximum time a diver can remain down and still surface at a steady rate with no decompression stops.  $t$  = time in minutes and  $d$  = depth in feet.

If a diver is planning a 45-minute dive, what is the maximum depth the diver can go without decompression stops on the way back up?

8.  $\frac{x-9}{3x-1} = \frac{2}{5}$

9.  $\frac{x-8}{11} = \frac{3x-12}{9}$

10.  $\frac{x+2}{x} = \frac{x+6}{x+2}$

11.  $\frac{x+1}{2x-7} = \frac{5}{8}$

12. Consider the following rational equation:  $\frac{x-4}{2x} = \frac{1}{-2}$

Is  $x=2$  a solution to this equation? Explain how you know without solving the whole thing. 😊

13. Consider the following rational equation:  $\frac{3x+3}{x-3} = \frac{45}{x}$

Is  $x=5$  a solution to this equation? Explain how you know without solving the whole thing. 😊