



# PROPORTIONS & QUADRATICS

The Weight Room

DIRECTIONS: Find all solutions. Leave solutions with square roots in radical form.

1.  $\frac{9}{x} = \frac{x}{16}$   $x^2 = 144$

$x = \pm 12$

2.  $\frac{2}{b} = \frac{b}{8}$

$b^2 = 16$

$b = \pm 4$

3.  $\frac{x}{5} = \frac{10}{x}$

$x^2 = 50$

$x = \pm 5\sqrt{2}$

4.  $\frac{x+2}{5} = \frac{4}{x-2}$

$x^2 - 4 = 20$

$x^2 = 24$

$x = \pm 2\sqrt{6}$

5.  $\frac{n+5}{5} = \frac{6}{n-2}$

$n^2 + 3n - 10 = 30$

$n^2 + 3n - 40 = 0$

$(n+8)(n-5) = 0$

$n = -8, 5$

7.  $\frac{5}{x+1} = \frac{x-4}{10}$

$x^2 - 3x - 4 = 50$

$x^2 - 3x - 54 = 0$

$(x-9)(x+6) = 0$

$x = -6, 9$

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

$x^2 + 2x - 8 = -9$

$x^2 + 2x + 1 = 0$

$(x+1)(x+1) = 0$

$x = -1$

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

$x^2 + 5x + 6 = 2$

$x^2 + 5x + 4 = 0$

$(x+4)(x+1) = 0$

$x = -4, -1$

10.  $\frac{x+3}{6} = \frac{2}{x-5}$

$x^2 - 2x - 15 = 12$

$x^2 - 2x - 27 = 0$

$x = \frac{2 \pm \sqrt{4 - 4(1)(-27)}}{2} = 1 \pm \sqrt{112}$

$x = 1 \pm 2\sqrt{7}$