

M8 - 10.0 - Solving Equations (OPPOSITE OPERATION BOTH SIDES)

$x + 1 = 3$ $x + 1 = 3$ $\quad -1 \quad -1$ $x + \cancel{1} = 3$ $\quad -\cancel{1} \quad -1$ $\boxed{x = 2}$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $x + \cancel{1} = 3 - 1$ $x = 2$ </div> <p>Subtract 1 from both sides $+1 - 1 = 0$. Cross it off.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>Check Answer! $(2) + 1 = 3$ ✓ Substitution</p> </div>	$x + 4 = 2x$ $-x \quad -x$ $\boxed{4 = x}$ <p>Subtract x from both sides</p> <p>Work on the complicated side!</p> <p>I'm not afraid of adding/subtracting x to/from both sides.</p>
$x - 1 = 2$ $x - 1 = 2$ $\quad +1 \quad +1$ $x - \cancel{1} = 2$ $\quad +\cancel{1} \quad +1$ $\boxed{x = 3}$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $x - \cancel{1} = 2 + 1$ $x = 3$ </div> <p>Add 1 to both sides $-1 + 1 = 0$. Cross it off.</p> $(3) - 1 = 2$	$3x + 3x = 4 + 8$ $6x = 12$ $\frac{6x}{6} = \frac{12}{6}$ $\boxed{x = 2}$ <p>Combine like Terms</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $a + 1 = a + 1$ </div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> $(2x) - 3 + 3x = 5x - 3$ </div>
$2x = 4$ $\frac{2x}{2} = \frac{4}{2}$ $\frac{\cancel{2}x}{\cancel{2}} = \frac{4}{2}$ $\boxed{x = 2}$ <p>Divide both sides by the number in front of the letter. $\frac{2}{2} = 1$. Cross it off.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $\cancel{2}x = \frac{4}{2}$ $x = 2$ </div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> $-x = 5$ $x = -5$ Divide by -1 </div>	$4(x - 3) = 8$ $4x - 12 = 8$ $+12 \quad +12$ $\frac{4x}{5} = \frac{20}{5}$ $\boxed{x = 4}$ <p>Multiply the outside by all of the inside.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> DMAS* Backwards </div>
$\frac{x}{2} = 3$ $2 \times \frac{x}{2} = 3 \times 2$ $\cancel{2} \times \frac{x}{\cancel{2}} = 3 \times 2$ $\boxed{x = 6}$ <p>Multiply both sides by the number below the letter. $\frac{2}{2} = 1$. Cross it off.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $\frac{x}{\cancel{2}} = 3 \times 2$ $x = 6$ </div>	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> $(x + 2)^2 = (x + 2)(x + 2)$ </div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 10px;"> $x + 2$ <i>all squared</i> </div> $\frac{x}{2} + \frac{1}{4} = \frac{3}{4}$ $\left(\frac{x}{2} + \frac{1}{4} = \frac{3}{4}\right) \times 4$ $\boxed{2x + 1 = 3}$ <p>Multiply both sides by the LCD (and simplify at the same time.)</p>
$\frac{2}{x} = 1$ $x \times \frac{2}{x} = 1 \times x$ $\cancel{x} \times \frac{2}{\cancel{x}} = 1 \times x$ $\boxed{2 = x}$ <p>Multiply both sides by x. $\frac{x}{x} = 1$. Cross it off.</p>	$\frac{a}{b} = \frac{c}{d}$ $\frac{a}{b} = \frac{(c)b}{d}$ <p>Cross Multiply</p> <p>Bring it up and Multiply. Bring it down. So Easy. (Over = Over!) (1...!)</p>
$x^2 = 25$ $\sqrt{x^2} = \sqrt{25}$ $\boxed{x = \pm 5}$ <p>Square/Root both sides.</p> $\sqrt{x} = 5$ $(\sqrt{x})^2 = (5)^2$ $\boxed{x = 25}$	$a + b = c$ $a = c - b$ <p>Bring it over! Change the Sign!</p>