

Solutions

2.1 Multi-Step Equations

2.1.1. Solve $4(x + 1) - 3 = 13$.

Solution. $4x + 1 = 13$, so $4x = 12$ and $x = 3$.

2.1.2. Solve $7 - 2x = 19$.

Solution. $-2x = 12$, so $x = -6$. Check: $7 - 2(-6) = 19$.

2.1.3. Solve $2(x + 3) = 2x + 6$.

Solution. Both sides simplify to $2x + 6$, so every real number is a solution.

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2.2 Literal Equations

2.2.1. Solve $C = 2\pi r$ for r .

Solution. Divide by 2π : $r = C/(2\pi)$.

2.2.2. Solve $v = u + at$ for t , assuming $a \neq 0$.

Solution. Subtract u and divide by a : $t = (v - u)/a$.

2.2.3. Solve $Q = ab + ac$ for a and state the needed restriction.

Solution. Factor: $Q = a(b + c)$. Thus $a = Q/(b + c)$ when $b + c \neq 0$.

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2.3 Inequalities and Compound Statements

2.3.1. Solve $5 - 2x \geq 11$.

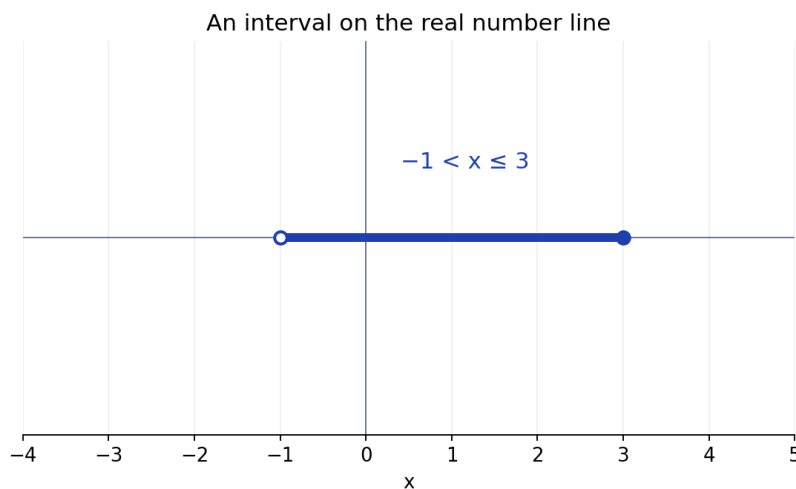
Solution. $-2x \geq 6$. Divide by -2 and reverse the relation: $x \leq -3$.

2.3.2. Solve $2 < x + 1 \leq 6$.

Solution. Subtract 1 throughout: $1 < x \leq 5$. The left endpoint is excluded and the right is included.

2.3.3. The diagram shows an interval. Write it as an inequality and in interval notation.

Solution. The open point at -1 is excluded and the filled point at 3 is included. The set is $-1 < x \leq 3$, or $(-1, 3]$.



The interval is $(-1, 3]$.