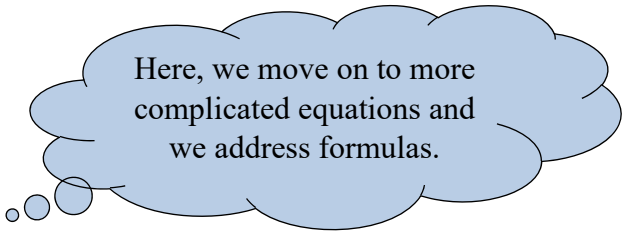
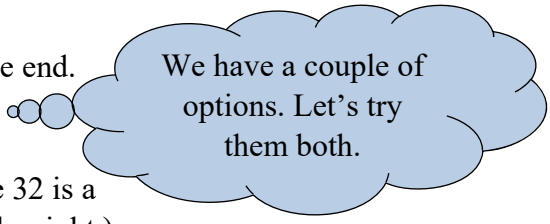


Technology Integrated Mathematics
Class Notes
Algebra: Solving More Equations and Formulas (Section 7.5)

Using what we know from earlier sections, let's jump right in and see how we will solve these equations.



expl 1: Try each method to solve. Check your solution at the end.

$4\,(t - 5) = 32$

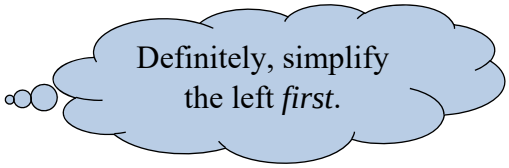
Method 1: Divide both sides by 4 *first*. (Notice that because 32 is a multiple of 4, this does *not* create an unwieldy fraction on the right.)

Method 2: Distribute the 4 on the left *first*. (We are simplifying what we can before doing anything to both sides of the equation.)

Check the solution in the *original* equation.

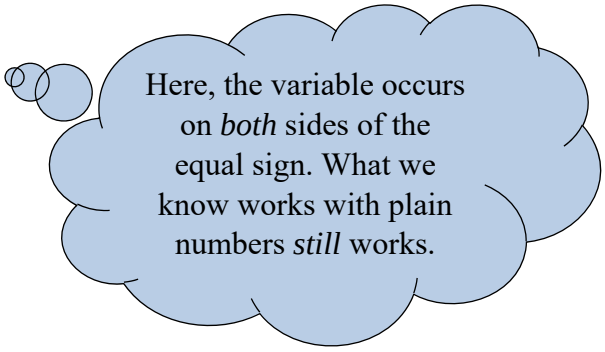
expl 2: Solve. Check your solution.

$5 - 2(x + 3) = 7$



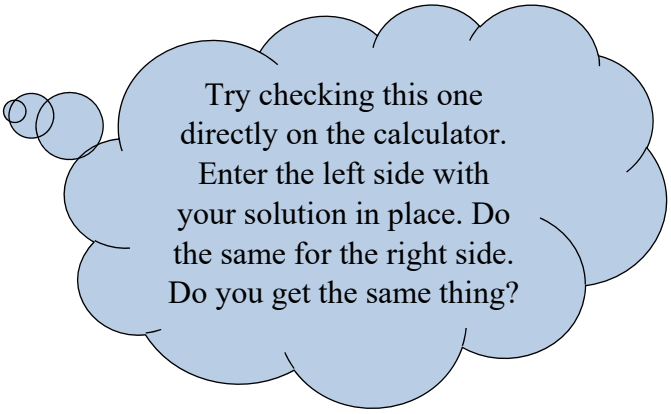
expl 3: Solve. Check your solution.

$4w + 15 = 6w - 6$



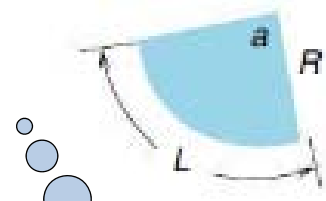
expl 4: Solve. Check your solution.

$-2(x+3) - 4x = 10x + 6$



Formulas:
A formula will be given with one particular variable isolated. We say that that variable is *solved for*. Our goal with these formulas will be to isolate, or solve for, another variable.

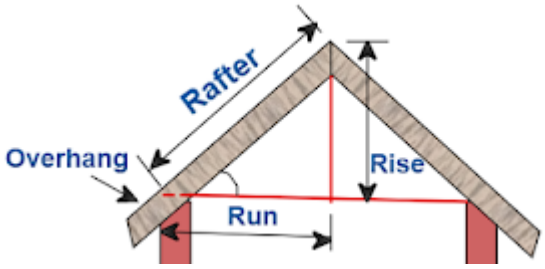
expl 5: The area of the sector A shown here is given by $A=\frac{\pi R^2 a}{360}$. Here, R is the radius of the circle (from which the sector was cut) and a is the angle in the corner (in degrees). Solve for a.



The angle a is called a **central angle**. Notice how A and a are two separate variables.

expl 6: Solve the formula $S=\frac{W}{2}(A+T)$ for A.

expl 7: The formula $L = U(R + H)$ determines the rafter length (L, in inches) of a roof, where R is the run (in feet), H is the overhang (in feet), and U is unit line length. If a rafter 240.5 inches long is used on a roof with a run of 15.5 ft and a unit line length of 13.0, how long will the overhang be?



(source: https://www.paramvisions.com/2021/07/how-to-calculate-length-of-roof-rafters.html)