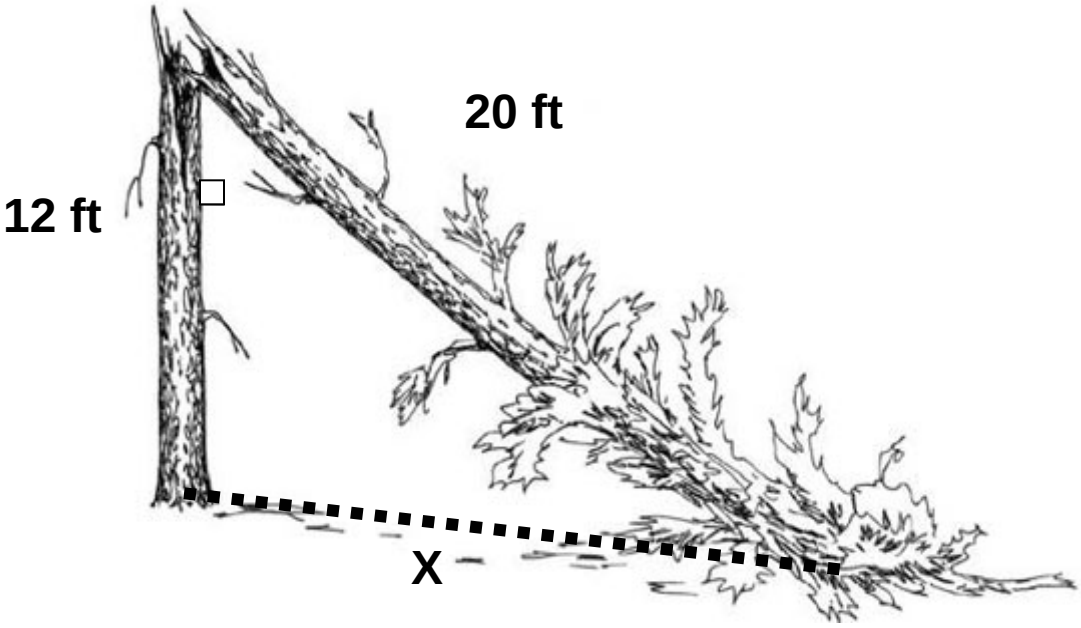
PROBLEM-OF-THE-DAY: ALGEBRA 1

WEEK: January 28 to February 1 **DAY:** Wednesday

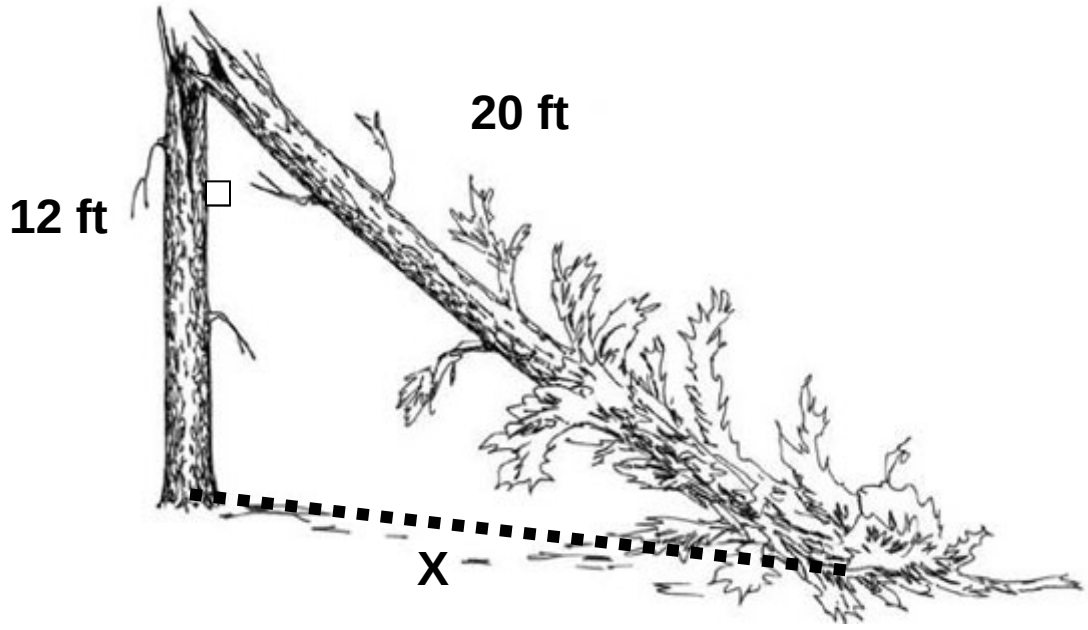
RISD Objective: Provided the length of a leg of a right triangle and a hypotenuse (including word problems), students will use the Pythagorean Theorem to find the length of the other leg, applying it as necessary.

PROBLEM #93

Lightning struck a tree, causing it to break and crash to the ground. The tree broke off 12 feet above the ground and the broken part was 20 feet long. If the broken tree formed a right triangle, how far away from the stump was the top of the tree?



MODEL SOLUTION #93



Pythagorean Theorem:

$leg^2 + leg^2 = hypotenuse^2$

$x^2 + 12^2 = 20^2$ replace values

$x^2 + 144 = 400$ square 12

$x^2 = 256$ subtract 144 from both sides

$x = 16$ square root both sides

The top of the broken tree is 16 feet from the base of the tree.