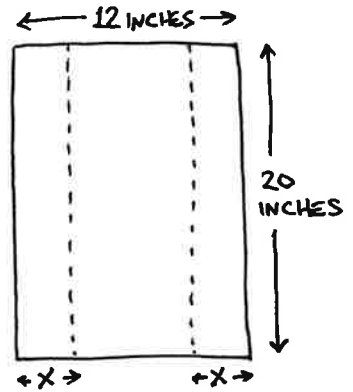


MATH 1314

Chapter 1.5: Applications of Quadratic Equations

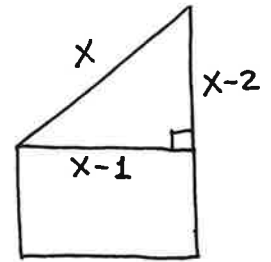
A trough from the end of a gutter spout is meant to direct water away from a house. The homeowners make the trough from a rectangular piece of aluminum that is 20 inches long and 12 inches wide.

They make a fold along the two long sides a distance of X inches from the edge. If they want the trough to hold 360 cubic inches of water, how far from the edge should they make the fold?



MATH 1314
Chapter 1.5: -2-

A window is in the shape of a rectangle with an adjacent right triangle. The length of one leg of the right triangle is 2 feet less than the length of the hypotenuse. The length of the other leg is 1 foot less than the length of the hypotenuse. Find the lengths of the sides.



MATH 1314
Chapter 1.5: -3-

A model rocket launch is shot straight upward from a launch pad of 1 m above ground level with an initial velocity of 24 m/sec.

Write a model to express the height of the rocket S in meters above ground level.

$$S = -\frac{1}{2}gt^2 + v_0t + S_0$$

Find the time at which the rocket is at a height of 20 m.

Find the time at which the rocket is at a height of 40 m.