Section 5.2C

1) A relief package is released from a helicopter at ~~1600~~ 1650 feet. The height of the package can be modeled by the equation $h = -16t^2 + ~~1550~~ 1650$, where h is the height of the package in feet and t is the time in seconds. The pilot wants to know how long it will take for the package to hit the roof of a building 50 feet off the ground.

h = 50

a) Write the equation that you are trying to solve. $50 = -16t^2 + 1650$

b) Solve the equation by factoring.

1st → set the equation = 0

$50 = -16t^2 + 1650$

$-50 \quad -50$

2nd → Find GCF = -16

$\frac{0}{-16} = \frac{-16t^2}{-16} + \frac{1600}{-16}$

$0 = -16(t^2 - 100)$

3rd → keep factoring because t^2

4th → set each factor = 0 and solve

$0 = -16(t+10)(t-10)$

$-16 = 0$ no solution

$t + 10 = 0$ $t = -10$ no neg. time

$t - 10 = 0$ $t = 10$

10 seconds

3) The height of a flare fired from the deck of a ship in distress can be modeled by $h = -16t^2 + 104t + 56$, where h is the height of the flare above water and t is the time in seconds. Find the time it takes the flare to hit the water.

height = 0

a) Write the equation that you are trying to solve. $0 = -16t^2 + 104t + 56$

b) Solve the equation by factoring.

1st → set equation = 0 done

2nd → GCF

GCF = -8

3rd → keep factoring since there is a t^2

$0 = \frac{-16t^2}{-8} + \frac{104t}{-8} + \frac{56}{-8}$

$0 = -8(2t^2 - 13t - 7)$

4th → set each factor = 0 and solve

$0 = -8(2t+1)(t-7)$

$2t + 1 = 0$ $t - 7 = 0$

$-1 \quad -1$ $+7 \quad +7$

$\frac{2t}{2} = \frac{-1}{2}$ $t = 7$

$t = -\frac{1}{2}$

7 seconds

4) The height of a triangle is 5 less than its base. The area of the triangle is 42 square inches. Find its base and height.

a) Draw a picture to represent the situation.

b) Write the equation that you are trying to solve. _____

c) Solve the equation by factoring.

HOMEWORK:

These are in the notes part of your book!

page 13 #6,8

P-12 #13-17

*Factoring QUIZ tomorrow!

page 13

5) The product of two consecutive odd integers is 99. Find the integers.

a) Write the equation that you are trying to solve. _____

b) Solve the equation by factoring.

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6) The height of a rocket launched upward from a ~~160~~ foot cliff is modeled by $h = -16t^2 + 48t + ~~180~~$, where h is the height in feet and t is the time in seconds. The rocket landed in a tree, 28 feet off the ground.

a) Write the equation that you are trying to solve. _____

b) Solve the equation by factoring.