Algebra II

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2)	-7 or 8	12)	9ft x 12ft	22)	300 calculators
4)	-9 and -7 7 and 9	14)	8cm x 16cm	24)	5x11m or 5.5 x 10m
6)	9Ft x 24Ft	16)	100Ft, 5sec	26)	skip
8)	8mi , 15mi	18)	2.5 sec	28)	6m x 9m
10)	10cm	20)	10 sec	30)	20yd x 50yd

Nov 13-2:03 PM

2) Find a number that is 56 less than its square.

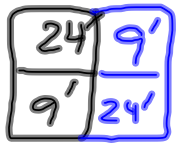
Nov 13-2:09 PM

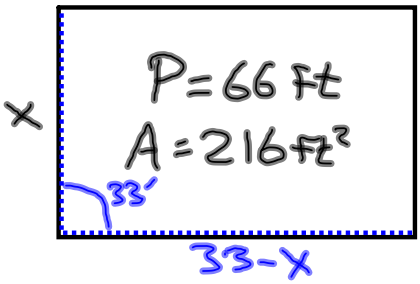
4) Find two consecutive odd integers the sum of whose squares is 130.

Nov 13-2:10 PM

6) A rectangular garden has perimeter 66 ft and area 216 ft^2.
Find the dimensions of the garden.

Let x = width
33−x = length





Area = l · w

$216 = (33-x)x$

$216 = 33x - x^2$

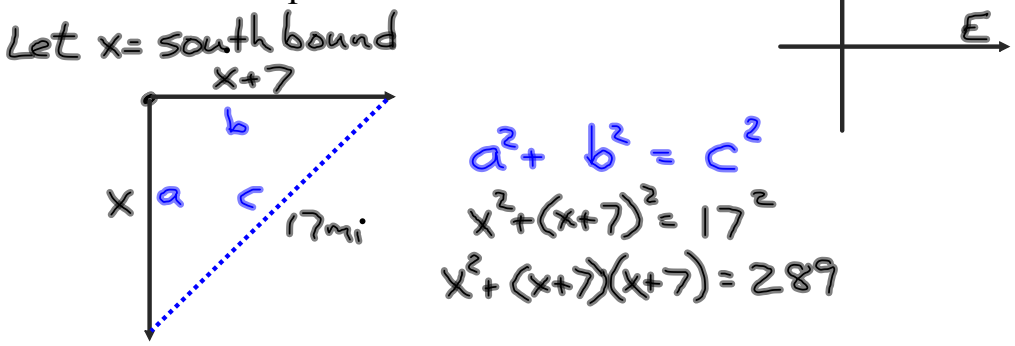
$x^2 - 33x + 216 = 0$

$(x-24)(x-9) = 0$

$\{24, 9\}$

Nov 13-2:10 PM

8) Two ships leave port, one sailing east and the other south. Some time later they are 17 mi apart, with the eastbound ship 7 mi farther from port than the southbound ship. How far is each from port?



Nov 13-2:11 PM

10) The height of a triangle is 7 cm less than the length of its base, and its area is 15 cm^2.

Nov 15-8:43 AM

12) The side of a large tent is in the shape of an isosceles triangle whose area is 54 ft^2 and whose base is 6 ft shorter than twice its height. Find the height and the basde of the side of the side of the tent.

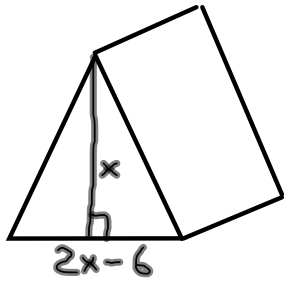
Let x = height

2x − 6 = base

$\text{Area} = \frac{1}{2} b h$

$54 = \frac{1}{2}(x)(2x-6)$

$54 = x^2 - 3x$



Nov 15-8:44 AM

14) A rectangle is twice as long as it is wide. If its length is increased by 4 cm and its width is decreased by 3 cm, the new rectangle formed has an area of 100 cm^2. Find the dimensions of the original rectangle.

Nov 15-8:46 AM

16) A ball is thrown directly upward from ground level with an initial speed of 80 ft/sec. How high will it go? When will it return to the ground?

$h = vt - 16t^2$

$h = 80t - 16t^2$

When is the ball at the maximum height?

2.5 sec

$h = 80(2.5) - 16(2.5)^2$

$= 200 - 100$

$= 100$ ft

how high is the ball on the ground? 0

$h = 0$

$0 = 80t - 16t^2$

$0 = 16t(5 - t)$

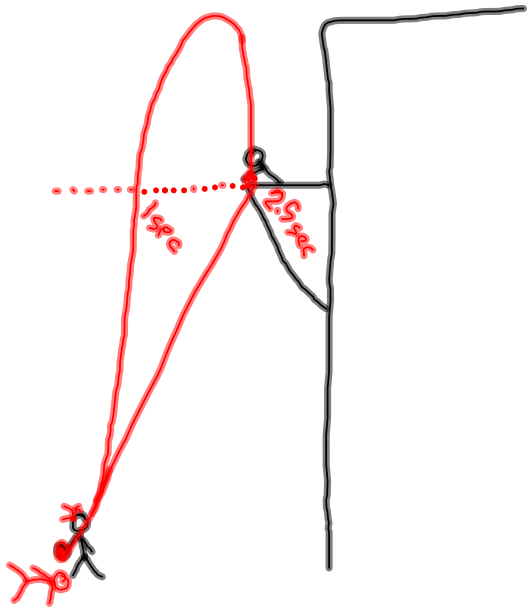
$16t = 0 \quad 5 - t = 0$

$t = 0 \quad 5 = t$

0 sec, 5 sec

Nov 15-8:48 AM

18) Luis wanted to throw an apple to Kim, who was on a balcony 40 ft above him, so he tossed it upward with an initial speed of 56 ft/sec. Kim missed it on the way up, but then caught it on the way down. How long was the apple in the air?



$h = vt - 16t^2$

$h = 56t - 16t^2$

$40 = 56t - 16t^2$

$16t^2 - 56t + 40 = 0 \quad \div 8$

$2t^2 - 7t + 5 = 0$

$(2t - 5)(t - 1) = 0$

$t = \frac{5}{2} \quad t = 1$

Nov 15-8:49 AM

20) A ball is thrown upward from the top of a 98-meter tower with an initial speed of 39.2 m/s. How much later will it hit the ground?

Nov 15-8:50 AM

22) The cost C of manufacturing n calculators per day at a certain plant is given by $C = n\,(\,20 - 0.01n\,) + 100$. The size of the plant limits the maximum output to 500 calculators per day. If the company plans to invest $5200 per day in manufacturing costs, how many calculators per day can it manufacture?

$5200 = n(20 - .01n) + 100$

$5200 = 20n - .01n^2 + 100$

$0.01n^2 - 20n + 5100 = 0$

$n^2 - 2000n + 510000 = 0$

$(n - 300)(n - 1700) = 0$

$\{300, 1700\}$

300 calculators

Nov 15-8:52 AM

24) A farmer plans to use 21 m of fencing to enclose a rectangular pen having area 55 m^2. Only three sides of the pen need fencing because part of an existing wall will form the 4th side. Find the dimensions of the pen.

Nov 15-8:54 AM

28) A decorator plans to place a rug in a room 9 m by 12 m in such a way that a uniform strip of flooring around the rug will remain uncovered. If the rug is to cover half the floor space, what should the dimensions of the rug be?

Area = $\ell \cdot w$

$54 = (9-2x)(12-2x)$

$54 = 108 - 42x + 4x^2$

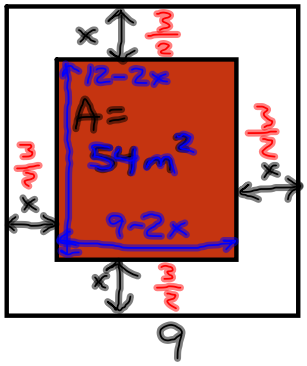
$-54 \quad -54$

$\div 2 \quad 0 = 4x^2 - 42x + 54$

$0 = 2x^2 - 21x + 27$

$0 = (2x-3)(x-9)$

$x = \frac{3}{2} \quad x = 9$

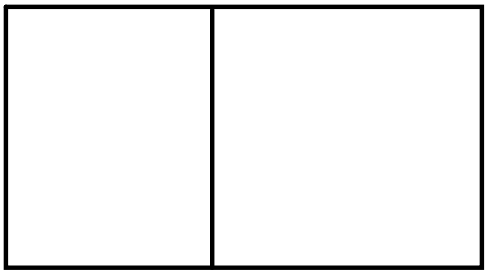


$9 \cdot 12 = 108$

6m × 9m

Nov 15-8:56 AM

30) A rancher plans to use 160 yd of fencing to encloses a rectangular corral and to divide it into two parts by a fence parallel to the shorter sides of the corral. Find the dimensions of the corral if its area is 1000 yd^2.



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