Math 107

Fall 2016

Lecture 10

Consecutive integers: x, $x+1$, $x+2$, $x+3$, ...

Find two consecutive integers such that the sum of twice the first and the second is 52.

2first + Second = 52

$2x + (x+1) = 52$

$3x + 1 = 52$

$3x = 52 - 1$

$3x = 51$

$x = \frac{51}{3}$

$x = 17$

17 & 18

Find two consecutive integers such that

3 times the larger one is equal to 47 more than the smaller one.

x & $x+1$

x: Smaller one

$x+1$: larger one

$3 \cdot \text{larger} = \text{Smaller} + 47$

$3(x+1) = x + 47$

$3x + 3 = x + 47$

$3x - x = 47 - 3$

$2x = 44$

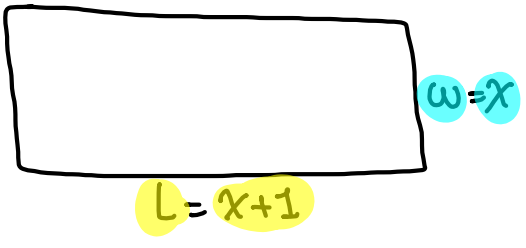
$x = \frac{44}{2}$

$x = 22$

22 & 23

Perimeter of a rectangular shape is 190m. length & width are two consecutive integers.

Find the dimensions of the shape.



$P = 190$

$2L + 2w = 190$

$2(x+1) + 2(x) = 190$

$2x + 2 + 2x = 190$

$4x + 2 = 190$

$4x = 190 - 2$

$4x = 188$

$x = 188/4$

$x = 47$

47m by 48m

Consecutive even integers: $x, x+2, x+4, \ldots$

Find two consecutive even integers such that twice the first decreased by 8 is equal to 10 more than the second one.

$2 \cdot \text{First} - 8 = \text{Second} + 10$

$2x - 8 = x + 2 + 10$

20 & 22

$2x - 8 = x + 12$

$2x - x = 12 + 8$

$x = 20$

Find two consecutive even integers such that the difference between 4 times the smaller one and the larger one is 118.

First $\rightarrow x$

Second $\rightarrow x+2$

$4 \text{ Smaller} - \text{larger} = 118$

$4x - (x+2) = 118$

$4x - x - 2 = 118$

$3x - 2 = 118$

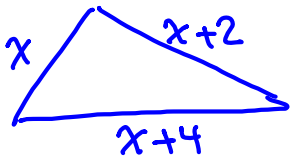
$3x = 118 + 2$

$3x = 120 \rightarrow x = 40$

40 & 42

Three sides of a triangle are three consecutive even integers. the perimeter is 24 ft.

Find the largest Side



$P = 24$

$a + b + c = 24$

$x + x+2 + x+4 = 24$

$3x + 6 = 24$

$3x = 24 - 6$

$3x = 18$

$x = \frac{18}{3}$ $x = 6$

$6 + 4$

10 ft

Consecutive odd integers: $x, x+2, x+4, x+6 \ldots$

7, 9, 11, 13, ...

has to odd

93, 95, 97, 99, ...

Find two cons. odd integers such that their sum is 76.

x & $x+2$

$x + x+2 = 76$

$2x + 2 = 76$

$2x = 76 - 2$

$2x = 74$

$x = \frac{74}{2}$

$x = 37$

37 & 39

Find two consecutive odd integers such that 55 less than twice the larger one is equal to the smaller one.

x & $x+2$

↓ Smaller ↓ larger

51 & 53

$2 \cdot \text{larger} - 55 = \text{Smaller}$

$2(x+2) - 55 = x$

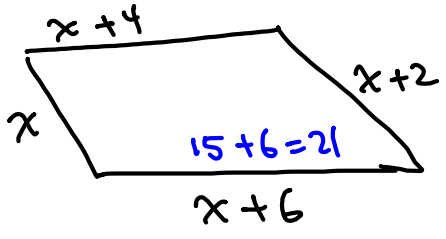
$2x + 4 - 55 = x$

$2x - 51 = x$

$2x - x = 51$

$x = 51$

The perimeter of the shape below is 72cm. All sides are 4 consecutive odd integers. Find the largest side.



* x has to be odd.

$P = 72$

Sum of all 4 sides $= 72$

$x + x+2 + x+4 + x+6 = 72$

$4x + 12 = 72$

$4x = 72 - 12$

$4x = 60$

$x = \frac{60}{4}$ $x = 15$

largest side is 21cm.