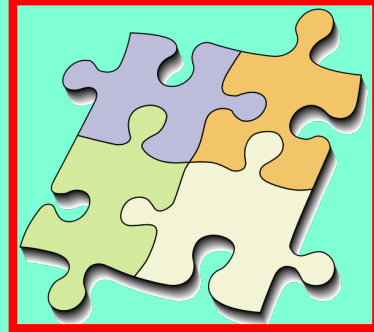**Math 107**

Fall 2017

Lecture 7

Ch. 6

Consecutive Integers

1, 2, 3, 4, · · · · ·

77, 78, 79, 80, · · · · ·

−19, −18, −17, −16, · · · ·

x, $x+1$, $x+2$, $x+3$, · · · ·

find two consecutive integers such that their total is 51.

25 & 26

$$x + x+1 = 51$$
$$2x+1 = 51$$
$$2x = 50 \rightarrow \boxed{x = 25}$$

find (two cons. integers) such that when three times the smaller one reduced by the larger one is equal to 33.

x & $x+1$

$3 \cdot$ Smaller $-$ larger $= 33$

$3x - (x+1) = 33$

17 & 18

$3x - x - 1 = 33$

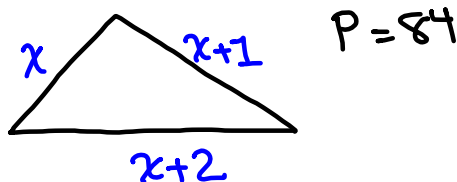$2x - 1 = 33$

$2x = 33 + 1$ $\quad \rightarrow x = 17$

$2x = 34$

The perimeter of triangle is 84 in.
Three sides are three consecutive integers.
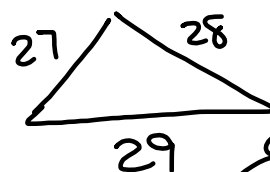find the longest side.

$P = 84$

x $x+1$ $P = 84$

$x+2$

$a + b + c = 84$

$x + x + 2 + x + 1 = 84$

$3x + 3 = 84$ $\quad \rightarrow x = \dfrac{81}{3}$ $\quad x = 27$

$3x = 84 - 3$

27   28

$3x = 81$

29

29 in.

find two cons. integers such that

3 times the first one is equal to

$\boxed{97 \quad \text{less than}}$ 5 times the Second one.

x & $x+1$ $\qquad$ $3 \cdot \text{first} = 5 \cdot \text{Second} - 97$

$\{46 \text{ & } 47\}$ $\qquad$ $3x = 5(x+1) - 97$

$3x = 5x + 5 - 97$

$3x = 5x - 92$ $\qquad$ $-2x = -92$

$3x - 5x = -92$ $\qquad$ $x = \dfrac{-92}{-2}$ $\quad \{x = 46\}$

In triangle ABC, The measure of

all three angles are three consecutive

integers. find all three angles.
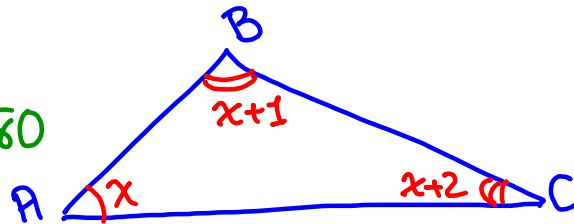
$A + B + C = 180°$

$x + x+1 + x+2 = 180$

$3x + 3 = 180$

$3x = 180 - 3$ $\quad x = \dfrac{177}{3}$ $\quad \boxed{x = 59}$

$3x = 177$

$59°, 60°, \text{and } 61°$

Consecutive even integers:

18, 20, 22, ·····

90, 92, 94, 96, ····

−32, −30, −28, ····

x, $x+2$, $x+4$, ···· $\longrightarrow$ must be even.

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find **two consecutive even integers** such that **their total** is 50. $\quad\rightarrow x$ & $x+2$

Must be even

$x + x+2 = 50$

$2x + 2 = 50$

$2x = 50 - 2$

$2x = 48$

$x = \dfrac{48}{2}$ $\boxed{x = 24}$

$\boxed{24 \text{ & } 26}$

find (two cons. even integers) such that

the (Sum) (five times the Smaller one) and

(3 times the larger one) is 534.

$x \ \& \ x+2$ $\overline{66 \ \& \ 68}$ 5·Smaller + 3·larger = 534

$$5x + 3(x+2) = 534 \quad \rightarrow 8x = 528$$

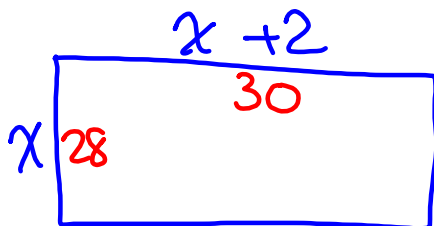$$5x + 3x + 6 = 534 \qquad x = \frac{528}{8}$$

$$8x + 6 = 534$$

$$8x = 534 - 6 \qquad \boxed{x = 66}$$

Perimeter of a rectangular shape is 116 ft. Length & width are two cons. even integers. find its (area).

$P = 116$

$x+2$
30
$x \ 28$

$A = LW$

$= 30(28) \quad \boxed{840 \ ft^2}$

$$2L + 2W = 116$$

$$2(x+2) + 2x = 116$$

$$2x + 4 + 2x = 116$$

$$4x + 4 = 116$$

$$4x = 112$$

$$x = 28$$

Consecutive odd integers

7, 9, 11, 13, ...

71, 73, 75, 77, ...

−15, −13, −11, −9, ...

x, $x + 2$, $x + 4$, ...

⟶ Must be odd.

Find two cons. odd integers such that their sum is 100.

x & $x + 2$

Must be odd

$x + x + 2 = 100$

$2x + 2 = 100$

$2x = 98$

$x = 49$

49 & 51

find two Cons. odd integers Such
that [4 times the Smaller one] is $x \text{ & } x+2$

equal to the difference of 98 and

twice the larger one.

4·Smaller $=$ 98 $-$ 2·larger

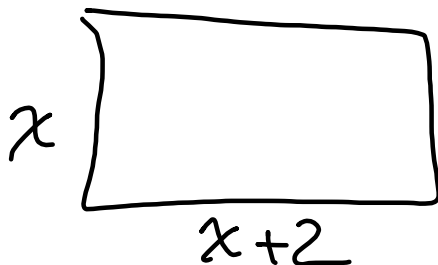$4 \cdot x = 98 - 2(x+2)$ NO Solution

$4x = 98 - 2x - 4$ $4x + 2x = 94$

$6x = 94$ $x = 15.\overline{6}$

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the length & width of rectangular

Pool are two cons. odd integers.

Perimeter is 272 ft. Find its dimensions.

$P = 272$

$2L + 2W = 272$

$2(x+2) + 2x = 272$

$2x + 4 + 2x = 272$

$4x + 4 = 272$

x

x+2

$$4x = 272 - 4$$

$$4x = 268$$

$$x = \frac{268}{4} \qquad \boxed{x = 67}$$

67 ft by 69 ft

WP 6 → Due Wednesday.