Math 107

Fall 2016

Lecture 9

A piece of wood is 49 inches long.

It is cut into 3 pieces.

Second piece is twice the first piece.

Third piece is 1 inch longer than 3 times the first piece.

Find all 3 pieces.

First	Second	Third
x	$2x$	$3x+1$

First + Second + Third = 49

$x + 2x + 3x+1 = 49$

$6x + 1 = 49$

$6x = 49 - 1$

$6x = 48$

$x = \frac{48}{6}$

$\boxed{x = 8}$

$2(8) = 16$

$3(8)+1 = 25$

8 in, 16 in, and 25 in.

Perimeter of a rectangular back Yard is 144 ft.

the length is 6ft longer than twice its width

find its dimensions

22 ft by 50 ft

22ft x 50ft

$= 50$
$= 44 + 6$
$L = 2(22) + 6$

$W = x$

$L = 2x + 6$

$P = 144$

$2L + 2W = 144$

$2(2x+6) + 2(x) = 144$

$4x + 12 + 2x = 144$

$6x + 12 = 144$

$6x = 144 - 12$

$6x = 132$

$x = \frac{132}{6}$

$x = 22$

Ch. 6: Consecutive integers

Integers: ..., -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, ...

7, 8, 9, 10, ...

23, 24, 25, 26, ...

-90, -89, -88, -87, ...

$x, x+1, x+2, x+3, \ldots$

The sum of two consecutive integers is 65.

Find both integers.

x & $x+1$

x & $x+1$

32 & 33

First + Second = 65

$x + x+1 = 65$

$2x + 1 = 65$

$2x = 65 - 1$

$2x = 64$

$x = \frac{64}{2} = 32$

$x = 32$

The sum of three consecutive integers is 180.

Find the largest one.

$x, x+1, x+2$

First + Second + Third = 180

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

$3x + 3 = 180$

$3x = 180 - 3$

$3x = 177$

$x = \frac{177}{3}$ $\boxed{x = 59}$

$59 + 2 = 61$

find $\underbrace{\text{two consecutive integers}}_{x\ ,\ x+1}$ such that the difference between 3 times the smaller one and 2 times the larger one is 75

3 Smaller − 2 larger = 75

$3(x) - 2(x+1) = 75$

$3x - 2x - 2 = 75$

$x - 2 = 75$

$x = 75 + 2$

$x = 77$

77 & 78

5 times the larger of two consecutive integers is equal to 205 more than the smaller one.

find both integers

Smaller $x \rightarrow 50$,

Larger $x+1 \rightarrow 51$

5 larger is Smaller + 205

$5(x+1) = x + 205$

$5x + 5 = x + 205$

$5x - x = 205 - 5$

$4x = 200$

$x = \frac{200}{4}$

$x = 50$

If the first and third of three consecutive odd integers are added, the result is 51 less than five times the second integers.

First + Third = 5 Second − 51

$x + x+4 = 5(x+2) - 51$

odd → 3, 5, 7, ----

91, 93, 95, ----

85, 87, 89, ----

First → x

Second → $x+2$

Third → $x+4$

$x + x+4 = 5(x+2) - 51$

First third 5 Second

$2x + 4 = 5x + 10 - 51$

$2x + 4 = 5x - 41$

$4 + 41 = 5x - 2x$

$45 = 3x$

$\frac{45}{3} = x \rightarrow \boxed{x = 15}$

Find the third integer

$x, x+2, x+4$

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