

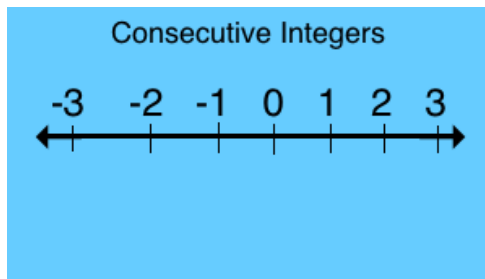
Aim: How can we solve consecutive integer problems leading to a quadratic equation?

Do Now:

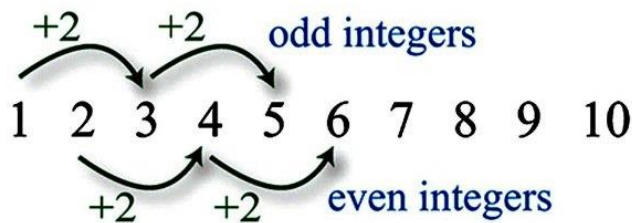
- 1) What is the next number
  - a. 4,6,8, \_\_\_\_
  - b. 3,5,7, \_\_\_\_
  - c. 6,7,8, \_\_\_\_
  - d.  $x, x + 1, \underline{\hspace{1cm}}$
  - e.  $x, x + 2, \underline{\hspace{1cm}}$
- 2) If  $x$  represents an even integer, represent the next even integer in terms of  $x$ .
- 3) If  $x$  represents an odd integer represent, in terms of  $x$ , the odd integer that precedes  $x$ .
- 4) If  $2n$  represents an even integer represent, in terms of  $n$ , the next integer. (Is it even or odd?)
- 5) If  $n$  is an odd integer is  $3n$  even or odd?

I – Consecutive Integers

1)



2)



3) Examples:

3 consecutive integers  $\rightarrow x, x+1, x+2$   
 $2, 3, 4$

3 consecutive even integers  $\rightarrow x, x+2, x+4$   
 $2, 4, 6$

3 consecutive odd integers  $\rightarrow x, x+2, x+4$   
 $3, 5, 7$

Aim: How can we solve consecutive integer problems leading to a quadratic equation?

## II – Model Problems

- 1) How do you find an algebraic solution?

### Example 1

- The sum of three consecutive integers is 66. What are the three integers?

**1<sup>st</sup> 21**  
**2<sup>nd</sup> 22**  
**3<sup>rd</sup> 23**

- 2) Find two consecutive odd integers whose product is 99.

- 3) A certain number added to its square is 30. Find the number.

## III – Exercises

- 1) Find two consecutive positive integers such that the square of the first decreased by 17 equals 4 times the second.
- 2) The ages of three family children can be expressed as consecutive integers. The square of the age of the youngest child is 4 more than eight times the age of the oldest child. Find the ages of the three children.
- 3) Find two consecutive integers whose product is 24 more than three times the first integer

**HW #6**

1. The sum of three consecutive integers is 39. Find the integers.
2. The sum of three consecutive odd integers is 45. What are the integers?
3. The sum of four consecutive even integers is  $-44$ . Find the integers.
4. The sum of three consecutive even integers is 72. What are the integers?
5. The sum of four consecutive integers is 90. Find the integers.
6. The product of two consecutive integers is 42.
7. The product of two consecutive integers is 30.
8. The product of two consecutive even integers is 80.
9. The product of two consecutive integers is 72.
10. The product of two consecutive odd integers is 195.
11. The product of two consecutive integers is 132.

**Answers to HW #6**

Please select the correct answer number for each question. There are more answer than questions. Answers may be repeated.

- 1) 13, 15
- 2) 8,10
- 3) 8,9
- 4) 12,13,14
- 5) 21,22,23,24
- 6) 20,21,22,23
- 7) 21, 23, 25, 27
- 8) -14, -12, -10, -8
- 9) -14, -16, -18, -20
- 10) 11, 12
- 11) 6,7
- 12) 22, 24, 26
- 13) 22, 23, 24
- 14) 5, 6
- 15) 13, 14, 15
- 16) 13, 15, 17